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1961 MARKET PLANNING GUIDE

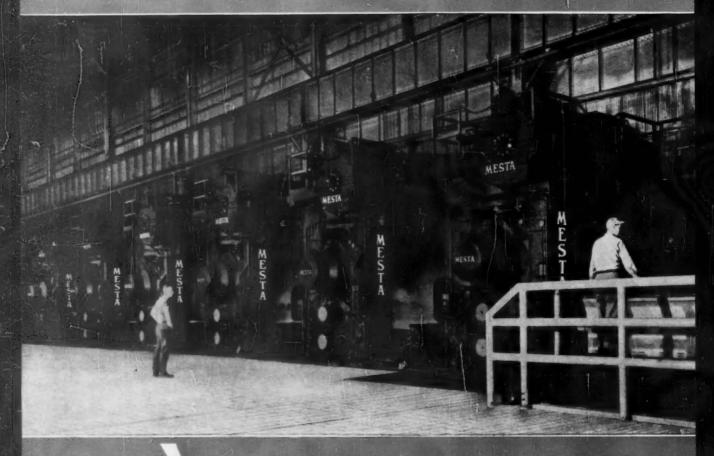
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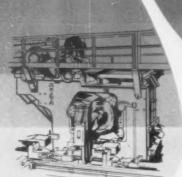
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METALWORKING **EXECUTIVES' FORECAST**

1961: SQUEEZE ON PROFITS

The Big Problem-Holding the price line will be major task in '61, say metalworking executives surveyed by The IRON AGE. They also expect sales to improve, but many believe profits will drop. Rising wage and material costs will put pressure on prices.

Construction Equipment—Sales may rise, but profits drop. P. 128

Conveyors, Cranes, Hoists-Increasing sales and costs. P. 132

Copper and Brass Rolling-Profit margins will shrink. P. 136

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Switchgear and Controls-Will profits rise or decline? P. 144

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Cover Feature

FOUR MARKETING FEATURES

—In this 106th Annual Issue of The IRON AGE are four valuable marketing features — executives' forecast, industry outlooks, steel consumption survey and price and production data. Details are below.

Metalworking

but profits are problem. P. 166

Stampings—Profits will drop, despite stronger sales. P. 170

Machine Tools — Higher costs may bring price rise. P. 174

Malleable Iron—Many foundries expect better year. P. 178

Nonferrous Foundries — Sales boost is key to profits. P. 182

Pumps and Compressors—Manufacturers fight rising costs. P. 188

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Steel Foundries—Sales may stay close to 1960 levels. P. 196

Welding Equipment — Better sales, but slimmer profits. P. 200



BUSINESS OUTLOOK—1961

THE GENERAL VIEW

Timing the Recovery—The recession that many refused to recognize months ago is now established. Timing of the recovery is now the important point.

Here's outlook for major sectors of the economy. P. 89

Washington—President-elect will face many problems. P. 91

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Automotive — Industry hopeful, but matching '60 difficult. P. 97

Credit Outlook — Don't expect big change in interest rates. P. 103

West Coast—Cautious optimism is the general opinion. P. 107

Machine Tools—Some improvement, but not much. P. 109

MARKETING GUIDES

STEEL CONSUMPTION SURVEY

New Planning Tool — Special IRON AGE study reports use of



seven major steel products by metalworking industry for 1960 with a forecast for first half of '61.

Breakdown by 3-digit SIC groups makes new data useful for market planning. P. 207

PRICES AND PRODUCTION

Latest Figures—Sixteen-page section gives price data and output for steel, nonferrous metals, pig iron, ferroalloys, iron ore, refractories, and scrap.

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NEXT WEEK

DEPRECIATION SURVEY

The Outcome — Industry has waited many months for the outcome of the Treasury Dept.'s survey of depreciation practices. Next week Under Secretary Fred C. Scribner, Jr., interprets the answers in an exclusive interview.





"We know why the word quality is associated with Sharon Steel" -FRANK CHUFO, Chief Inspector The General Fireproofing Company

"Over the past quarter-century we have used hundreds of tons of Sharon Steel in vital parts of our office furniture line," states Frank Chufo, chief inspector at General Fireproofing. "We have found Sharon Steel consistently to be to specification with excellent workability, uniformity and tolerance control. I'm convinced it's hard to beat the quality of steel we get from the Sharon Steel Corporation, Sharon, Pa."



SHARON Quality STEEL



Get Your Shoes Fixed: A Long, Rocky Road Ahead

Let no man fool you. The next five years will be tough for all companies that hope to move ahead. To stand still is to deteriorate—or, eventually, to liquidate.

Yet let no man say there isn't hope. There is. It allows no compromise with dedicated hard work and a willingness to explain and communicate your side of the story.

It won't be pleasant trying to keep costs down. It isn't going to be easy designing new and successful products or techniques. It will be hard to find a production cost breakthrough. But all this can—and will—be done by many.

Exhorting the "government" to do something for business may be a waste of time. Communication and explanation at the source is better. Keep after your own district, State and Federal representatives. They must be informed of the plight of business no matter how often the story is told.

It may be some time before labor will understand the somber outlook for profits—profits with which to buy the machinery and techniques needed to meet international price competition.

You must try to convince union leaders that the gap between American and foreign wages is serious. Unless they do their part to protect the goose that lays the golden egg, they hurt all labor. This will be an almost impossible job. But not to attempt it is to give up.

Foreign businessmen believe the world is their oyster; and they are out to open it. They will compete in your own back yard. They have—or know about—the best and latest machinery.

Where is our salvation, then? If by salvation we mean a sudden end—to our woes, surprise solutions to our troubles, or a cessation of our opposition, there is none. But if we mean looking for better tools, products and methods—better than our foreign friends have—there is some hope.

If we allow for more direct action and less committee thinking, we have made a start. If we attempt to communicate, explain and even cajole, we have made a small start in keeping free enterprise.

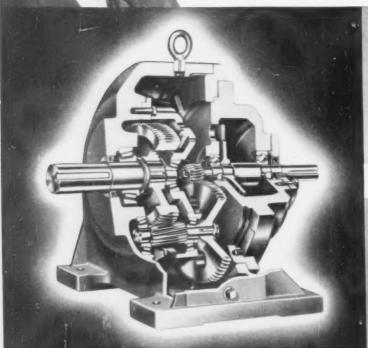
If we do our part to try to enlighten government people, we have done a minimum. If we give the most of ourselves, if we think and don't meander, and if we convince others of America's danger, we are headed in the right direction.

When we have separated the men from the boys, we are on our way—to a sound economic future.

Tom Campleee

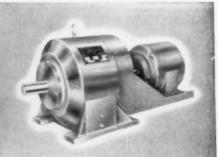
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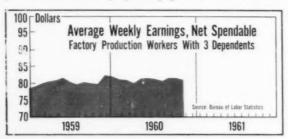
The Key to 1961: Consumer Buying

The big question as the New Year takes its first uncertain steps is whether consumer buying of finished products will fall off this year. Up to the last weeks of 1960, sales of finished products had held up well. Most of the sag during the year could be traced to liquidation of raw material inventories.

During the year, two-thirds of the drop in the FRB Index of Industrial Production was caused by a 15-point drop in the index of durable goods materials. Over the same period, production equipment showed little or no decline, and consumer goods dropped only moderately.

One Hitch: Lower Spending Power

If consumer spending is to hold up, it faces the problem of declining spending power. In November,



spendable earnings of a factory worker dipped from \$81.18 in October to \$80.95. In the face of higher prices, "real" spendable earnings dropped even more by comparison.

Machine Tool Orders Up a Notch

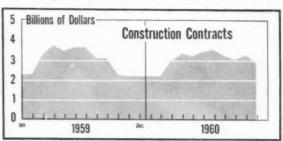
Orders for metal cutting tools picked up a bit from October to a total of \$39.75 million, according to the National Machine Tool Builders' Assn. The bulk of the gain, from \$35.6 million in October, is in a \$3 million pickup in foreign orders. But orders for forming tools dropped more than 50 pct, from \$20.6 million in October to only \$9.9 million in November.

Press Makers Divided on Outlook

In spite of the downtrend in forming tool orders, at least one major press maker says 1961 sales of presses will be the best his company has had in years. Forecast is based on heavy purchases for large special press lines by two of the Big Three automakers. The outlook for foreign orders is also good. Others, while agreeing export is improved, say the domestic outlook as far from that encouraging.

Construction Continues to Hold Up

Although construction contracts in November reflect



a seasonal drop, the overall level for the year continues high. November, usually a drab period in building, set a new record for the month, according to F. W. Dodge Corp. figures, holding 22 pct above November of the previous year.

Total contracts for the month totaled \$2.88 billion, compared with \$2.37 billion a year ago. All three categories, non-residential, residential, and heavy engineering showed year-to-year gains.

Will Compacts Hold 1960 Pattern?

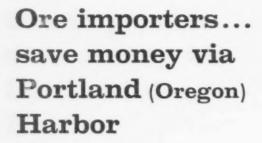
With compacts now an established part of the auto market, it's time to assess penetration. Sales of compacts and import cars in the U. S. will reach 2.1 million in 1960, a substantial figure. This includes about 500,-000 imports. Overall, 1960 was a good year in sales, with 6,550,000 new cars sold, second only to 1955.

Business Failures Stay High

Business failures increased 4 pct in November, in terms of number of failures, and total dollar liabilities also increased. As the year drew to a close, total liabilities involved in failure in the first eleven months



of 1960 reached \$859 million. This is well ahead of the comparative 1959 total of \$633 million. The November figure is still well below the record-breaking month of June.



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Landis Study Suggests NLRB Reorganization

Report by James M. Landis to President-elect Kennedy on Federal regulatory agencies proposes reorganization of the National Labor Relations Board, including a return to the old Wagner Board administrative setup.

NLRB criticism centers on the division of authority between the Board and the General Counsel created by the Taft-Hartley Act. Mr. Landis notes that before the Taft Act, NLRB appointed its own counsel and handled all aspects of both unfair labor practice and representation cases.

It determined what cases to prosecute, conducted the prosecution, and rendered the decision. But the General Counsel now has authority to issue or withhold complaints in unfair labor practice cases and to control personnel, except legal assistants to board members.

Says Mr. Landis: "Friction between the General Counsel and the Board, so continuingly serious, is not likely to be significantly reduced. Their disparate positions are such that rivalry between them is inevitable."

Mitchell Will Head Rail Labor Study

Secretary of Labor James P. Mitchell moves out of office on Jan. 20—but not into the ranks of the unemployed. He has at least two jobs lined up already.

First, he has been named to head the Presidential Railroad Commission. Second, he will act as consultant to several companies.

He has been appointed to head the group of 15 representatives from the nation's railroads, five operating unions, and the public charged with seeking a solution to labor-management disputes. Mr. Mitchell has also said he will open an office in New York around Feb. 15 "to provide consulting services to several industrial and business concerns."

Planning Changes? Get Them on the Record

Companies planning to change operations for economic reasons would do well to get that fact on the record while it is in the planning stages. And the earlier the better.

Memos, minutes of meetings, notes on phone conversations, etc. (with date and time noted) could serve as evidence of intent later—if needed.

Recently the Sixth Court of Appeals denied enforcement of an NLRB order requiring reinstatement of three employees who were

released after they joined the Teamsters. Court found that the company had already decided to change to common carrier delivery of gasoline to its service stations for economic reasons.

It pointed out that the company was under no obligation to delay a change decided on before the union came in.

USW: No Contest

The race for leadership of the United Steelworkers, slated for later this month, will be a "no contest" affair.

Opposition to David J. Mc-Donald, president, has collapsed. Challenger Donald C. Rarick, who polled 30 pct of the vote in 1957, failed to get the needed 40 local nominations.

Are Unions Getting Too Big?

Members of labor unions are showing increasing concern over the size and strength of unions. And there is a growing desire for close government regulation of union operations. However, the general public strongly supports unionism as an institution.

These are conclusions from Opinion Research Corp.'s latest survey in a series of trend studies on the labor movement.

Among union members questioned, 58 pct said unions currently are either large and strong enough or too large. In 1956, only 28 pct held this view.

Closer government scrutiny of unions was favored by 63 pct of union members questioned, compared with 60 pct of the general public who hold this view. While this attitude was held by 5 pct fewer union members than a year ago, it was 10 points higher than in 1957, and 16 points higher than in 1951-53.

On the other hand, says the report, there was strong support for the statement, "Labor unions are very necessary to support the working man."

Agreement came from 73 pct of the general public, 78 pct of white collar workers, 74 pct of stockholders, 69 pct of Republicans, and 67 pct of proprietors and managers.

Study covered 1439 adults, including 460 manual workers. Of these, 262 were union members and 198 were nonmembers. Additional data were obtained from a related study of 6038 interviews conducted in 1959, including 1634 union families.

IT'S NEW IT'S VERSATILE IT'S AMERICAN

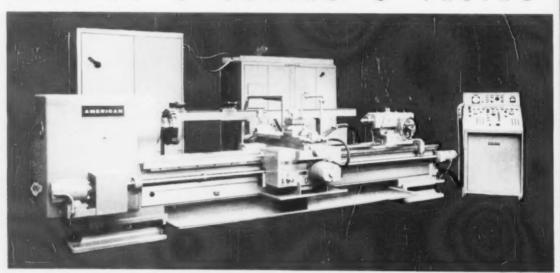
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* Inside the "Landis Report"

A major aim of the proposed sweeping reorganization of Federal agencies is to restrict the activities of industries dealing with government regulators.

A report by James M. Landis to President-elect Kennedy specifically criticizes off-the-record approaches to the agencies by industry and a so-called "industry orientation" of agency personnel.

One step in the reorganization of such agencies as the Federal Trade Commission, says Mr. Landis, should be an order from the President telling government employees to "reject and refrain from receiving ex parte presentations in pending matters before them." He further suggests that these off-the-record approaches be made criminal offenses.

Mr. Landis, a former Federal agency member and an old friend of the President-elect's family, calls regulated industries the "worst source" of personal, off-the-record presentations.

He charges also that industry representatives have caused the agencies to become "industry oriented." This is a return of the old charge that "the regulatees have become the regulators."

Mr. Landis claims the problem of industry orientation relates to "those who are originally oriented toward the public interest but who gradually and honestly begin to view that interest more in terms of the private interest."

He says "Daily machine-gun-like impact" of industry representatives on both agency and its staff causes industry orientation.

Mr. Landis suggests Presidential direction to solve reorganization problems, including those dealing with regulated industry activity. Mr. Kennedy is expected to ask Congress for these powers.

southern Democrats and Republicans, would still be a thorn in the liberal Democratic leadership's side.

■ Small Business Hopes Raised—Again

Reports that the small business share of military procurement money is getting smaller will give added impetus to moves to get small firms more defense contracts.

President-elect Kennedy, members of Congress, and the Small Business Administration have promised action to help small business get a bigger share of defense spending.

Small companies received only 14.8 pct of total military contracts in the first quarter of fiscal 1961 (July-Sept., 1960). This compares with 17.9 pct in the first quarter of the previous year. Research and development contracts let to small firms fell from 3 pct to 1.4 pct between the first quarters of fiscal 1960 and 1961.

Can Taxes Ease Economic Cycles?

The Council of Economic Advisers, to be given a new importance by John F. Kennedy, will back a long-range plan for tax reform to stimulate the nation's economy.

Walter W. Heller, newly designated chairman of the Council, advocates "exploration without commitment" of the possibility of putting Federal tax rates on a sliding basis. He feels this will permit flexibility in coping with inflation, as well as periods of economic downturn.

Mr. Heller believes the U. S. should go slow on tax changes, however. He would first try to stimu-

late the economy by more defense spending, easing housing credit, and such legislation as Federal aid to distressed areas, school construction and housing. This jibes with the thoughts of his boss, John Kennedy.

Conservatives Are Strong in Congress

The 87th Congress opened Tuesday with the Democratic leadership in complete control of the situation, with a clear majority in the House and Senate. And it looked as if it would be able to deal with major revolts by southern conservatives.

However, it is evident that the conservative coalition, composed of

Materials Research Called Inadequate

Congressional defense production experts say research into new and improved materials for U. S. defense is "inadequate."

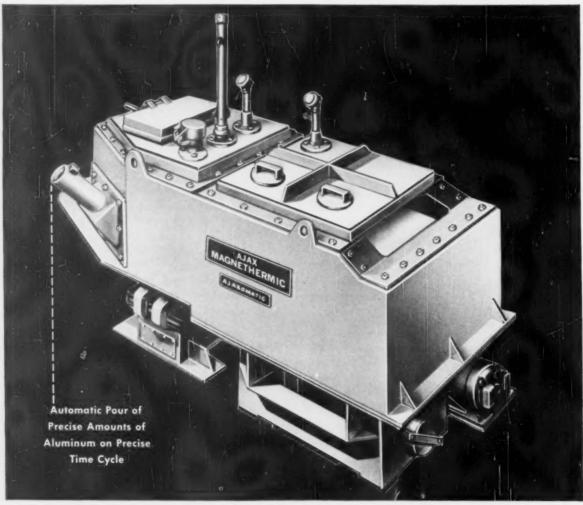
The joint Committee on Defense Production reports that basic research for high temperature materials "could be increased at least tenfold with amounts of money that are negligible compared with our defense budget."

The Committee points out that certain special property materials will be needed in significantly larger amounts between now and mid-1964. These include: Molybdenum, tantalum, columbium, bismuth, tellurium, titanium, platinum, palladium, and hafnium.

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New Aluminum Plant For Venezuela

Plans are underway to build a \$30 million aluminum reduction plant in the Caroni region of south-eastern Venezuela. The plans were firmed when Reynolds International, Inc., recently signed an agreement with the Venezuelan government forming a corporation to build the plant.

Initial production capacity will be approximately 25,000 tons annually. About 80 pct of this capacity is expected to be consumed in Venezuela with the rest exported.

The agreement calls for Reynolds International to own 50 pct of the new facilities. The Venezuelan government will own the other 50 pct,

Foreign Investments Continue to Rise

Foreign investments by U. S. companies' branches and subsidiaries have climbed from \$12 billion in 1950 to just more than \$30 billion in 1960. And a full-scale study of this \$30 billion has been released by the Office of Business Economics, Dept. of Commerce.

The result of two years of research, the report notes:

Canada has received about onethird of U. S. foreign investments. Latin America is receiving a "somewhat smaller amount," and Europe, with present expenditures around \$5 billion, is the area of most rapid expansion.

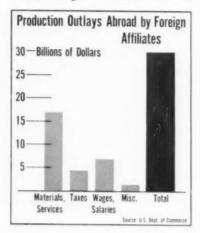
Investments for manufacturing facilities are growing. They are now almost as large as petroleum investments—the leader for more than a decade.

Aggregate production of commodities by U. S.-owned facilities abroad has increased from \$32 billion in 1957 to \$35 billion in 1960. Sales of foreign manufacturing af-

filiates rose nearly 15 pct from 1957 to 1959 and now exceed \$21 billion.

More than three million foreign workers are employed by these companies.

And, almost three-fourths of the direct foreign investments are in



companies where the U. S. share is 95 pct or more. Better than half of the investment total is held by 45 parent companies.

More Capital Spending

Volkswagen of America, in anticipation of sales of nearly 200,000 units in 1961, plans to increase its capital spending in this country.

The German automaker says additional purchases of American raw materials and machine tools are planned. In 1959, VW bought \$4 million worth of American sheet steel and \$26.5 million worth of machine tools. Substantial amounts were also spent on other products.

U. S.-USSR Trade Defies Cold War

Washington foreign trade experts are predicting that Soviet-U. S. trade will grow larger in the near future. They say 1960 figures show it to be the biggest trade year between the two countries in over a decade.

Final trade figures are expected to show U. S. exports to Russia jumping four times the 1959 export total of \$7.4 million. U. S. imports from the Soviet Union are expected to remain about the same.

The U. S. export expansion program is expected to keep U. S.-Soviet trade at high levels despite continued cold war activities.

Iran Studies Steel Possibilities

Kaiser Engineers and Constructors, Inc., Oakland, Calif., has been appointed by the Steel Corp. of Iran to assist in the planning of new steel plant facilities.

The contract, signed recently, includes the preparation of a comprehensive report and analysis covering all phases of potential steel facilities. This includes raw materials, location, market, products and processes, preliminary design, construction and operating costs, as well as financial requirements

Thus far, almost all of Iran's steel requirements have been met by imports. The United States has been one of the chief suppliers.

Hodges Will Push Export Activity

The drive to boost U. S. exports will be intensified by Luther H. Hodges, the new Secretary of Commerce. He believes the U. S. should "redouble its efforts toward international trade."

Redoubling, Mr. Hodges says, should come via export expansion and more tourism in the U. S. by foreigners.

Foreign sales of U. S. goods and visits to this country both help to bring back American dollars.

NEW DEPARTURES IN MINIATURE



ULTRA-CLEAN INCUBATORS FOR M/I* BALL BEARINGS

N/D'S NEW WHITE ROOM PROVIDES ULTRA-CLEAN ENVIRONMENT FOR M/I BALL BEARING ASSEMBLY

N/D announces a new White Room at Sandusky, Ohio incorporating the latest technological advances available today. This new room provides a virtually dust-free atmosphere so necessary for the production of Miniature and Instrument Ball Bearings of high reliability.

Environmental controls within the room hold temperature to plus or minus 1°... with maximum relative humidity only 40%. Final air filtration into room removes particles larger than 3/10 micron. A complete air change is made every three minutes. All authorized personnel entering the room are thoroughly bathed by air showers in two successive deduster chambers.

You can benefit from New Departure's 25 years of experience in M/I ball bearing production by calling your nearby N/D Sales Engineer. Or write Department L.S., New Departure, Division of General Motors Corporation, Bristol, Conn. *Miniature and Instrument Ball Bearings.



SEND FOR NEW DEPARTURE'S M/I BALL BEARING CATALOG TODAY. WRITE DEPT. L. S.

NEW DEPARTURE MINIATURE AND INSTRUMENT BALL BEARINGS

Yields Molybdenum Oxides

An acid process transforms low-grade molybdenum-sulphide concentrates into high-grade molybdenum oxides. These oxides serve as alloying agents in steelmaking. When the concentrates are roasted at 1900°F, the volatile oxides form. They're collected in a bag filter as a fine lightweight powder. Purity is 99 pct. This new process handles the treatment of low-grade concentrates that couldn't be treated by previous methods.

Automate Big Structurals

Structural fabrication took a giant stride forward with a mechanized-handling system for sections up to 80 ft long. This system, used in a midwest plant, applies automation to welding, drilling, reaming and painting of structural members. Numerical-drilling setups yield the biggest reduction in production costs.

Machine Swages Tappets

An automatic machine swages the ends of valve-tappet rods made from carbon-steel tubes. Cut-to-length tubes are fed into a drum which dispenses them to the swaging device. The latter consists of a roller that carries the tubes and two profiled rollers which press against the tube ends until they close. This machine automatically swages and hardens 600 tappets per hour.

Integrated Diecasting

A new diecasting machine turns out complex aluminum-cylinder blocks weighing up to 51 lb. This Italian machine is integrated with a melting furnace, automatic degassing and ladling units and an ejection device. At the end of the process there's an automated die-trimming press.

Metalcutting Data Center

A new data center, which will furnish information on proper cutting speeds and feeds for all metals and alloys used in metalcutting operations, will soon be opened. Most of the data are based on information developed for military projects. However, the parent research organization is expected to offer these facts to industry. This should prove helpful in obtaining standard time-and-cost figures for production work. It could also be useful in programming numerical machines.

Extends Lathe-Clutch Life

The Russians use cermet-coated metal disks in lieu of bronze clutch plates on multispindle chucking lathes. It's reported that these coated disks last five times longer than bronze plates. In oil, the coefficient of friction for each disk is 0.12. Each disk consists of a thin copper-plated steel sheet, covered with graphite powder, pressed between two cermet sheets.

Explosives Break Up Scrap

Several British companies use explosives to break faulty or worn-out castings, particularly large ones, into little pieces. By using small explosive charges, these companies reduce the amount of space needed to store defective castings prior to remelting or final disposal. The cost aspect also appears to be promising.

Coolant for Tough Alloys

Until now, heavy-duty machining has depended upon reinforced-petroleum oils. But a new water-soluble coolant has entered the field. This new-comer has a high sulphur and chlorine content. Thus, it insures good anti-weld properties. When mixed with water, the synthetic base provides a stable emulsion for long periods of continued use. Recommended uses include treading, tapping, stamping and drawing of tough alloy steels.

Improve Low-Alloy Steels

Advances in basic-electric and basic-induction atmospheric and vacuum steelmaking practices prove out the need for low phosphorus and sulphur contents in cast low-alloy steels. The ductility and the toughness of these steels hinge on phosphorus and sulphur contents. Other mechanical properties of heat-treated castings also vary with the amount of sulphur present in the steel.



General Foreman - Kennametal Carbide Engineer - Machine Operator

3-man team solves operating problem ... changed to fast-indexing insert tooling —speeded production—reduced costs

PROBLEM: High cost of production due to slow operation, tool breakage, and tool grinding.

SOLUTION: Job study by 3-man team recommended change from brazed-tip tools to Kennametal* throw-away insert type tooling.

RESULT: Stepped-up speeds and feeds, improved chip control, increased tool life, eliminated tool grinding—reduced cost of job 40%. That's the kind of product and service you can get through your Kennametal carbide engineer. Thoroughly trained in carbide products, he devotes his time exclusively to the sale and application of Kennametal hard carbides . . . and is well

qualified to provide on-the-spot analysis and recommendations. If your job requires unusual or special design engineering and application service, your Kennametal man will make our headquarters engineering and manufacturing facilities available.

Depth of on-the-job experience—plus the continuing development of a variety of tungsten, titanium, and tantalum carbide grades—has lead to the use of Kennametal compositions in practically every industry. And our product development group, by working in close cooperation with design engineers, sales engineers and customers, keeps coming up with new products and new ap-

plications—engineered and developed to meet both general and specific customer requirements.

We believe you will be interested in our booklet, "There's Profit in Retiring a Tradition," which gives facts on how some companies have reduced machining costs as much as 70 per cent. Based on actual cases, it makes practical and profitable reading. Ask your Kennametal Carbide Engineer for a copy . . . or write direct to Kennametal Inc., Dept. IA, Latrobe, Pa.

KENNAMETAL ... Partners in Progress

Well Done

Sir—It was with a great deal of interest that I noted your editorial on p. 5 of the Dec. 15 issue of your good publication ("Communications Crisis: It's Worse Than You Think"). A very well done piece! In fact, it was of enough interest to prompt us to ask you if you would please send us several tear sheets of same.—Owen J. Crumb, Chapman-Nowak & Associates, Inc., Syracuse, N. Y.

• The tear sheets are in the mail.— Ed.

Machining Methods

Sir—Your article on Special Machining Methods in the Dec. 8 issue of The IRON AGE is excellent and I should like to supply a copy to each of our power sales engineers. Can I obtain seven copies?

—John R. Parker, Southern California Edison Co., Los Angeles, Calif.

Sir—This is an excellent article and we would like to have copies for our library.—Cedric Sun, Wah Chang Corp., New York, N. Y.

Sir—We would like reprints of this very informative article—Karl E. Katz, The Ashcombe Co., York, Pa.

Sir—We have enjoyed this article very much.—D. E. Farkas, Chrysler Corp., Detroit, Mich.

Sir—The article has special interest to us. If you can spare six copies we would appreciate them very much. This would provide one copy for each of the key engineers in our research library.—Russell A. Yeo, General Electric Co., Cincinnati, O.

Sir—Congratulations on a well-written, timely article. — H. W.

Reno, Amphenol-Borg Electronics Corp., Broadview, Ill.

 All requests for reprints are in the mail.—Ed.

Top-Notch

Sir — E. C. Beaudet's article "Growth: How Much, What Price?" which appeared in the Dec. 8 issue of The IRON AGE was extremely interesting and helpful. It's just another case of top-notch industrial news coverage and analysis by the editors of your magazine. Keep up the fine work. Can I get several reprints of this article?—Joseph McGinnis, Waynesboro, Va.

• They're on the way.-Ed.

Capacity Up

Sir—Just to keep the record straight, we would like to bring to your attention a typographical error that appeared in Your Oct. 20 issue in the chart "Where Vacuum Melting Capacity is Located." Capacity for Haynes Stellite Co. should have been 3,220,000 pounds per year rather than 322,000 pounds per year. This applies to the yearly capacity from our vacuum melting facilities. — D. L. Jeka, Haynes Stellite Co., New York, N. Y.

 We are glad to bring Haynes Stellite's capacity up to the correct figure.—Ed.

A Success

Sir—I want to congratulate you on the fine editorial on Treasury Secretary Robert Anderson ("Mr. Anderson's Mission: Was It a Dismal Failure?"). I heartily agree with you that Mr. Anderson's mission was a tremendous success and that news writers have unfairly maligned him probably as a result of their own failure to comprehend the necessity for bringing some of these facts home to the public of this country.—William H. Webb, Webb, Mackey & Burden, Pittsburgh, Pa.

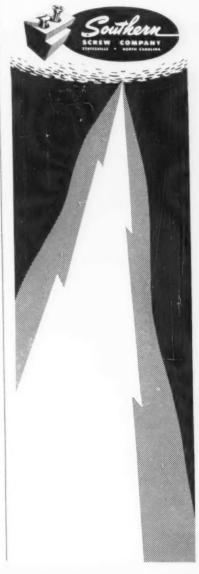
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Why you can be sure...

Celanese Cellulubes are the best functional fluids you can use

There are four practical reasons behind our claim that you just can't buy better fire-resistant hydraulic fluids or air compressor lubricants than Celanese Cellulubes.



BASIC PRODUCER—Celanese was the *first* to produce phosphate esters... and is the *only* producer currently marketing a series of industrial phosphate ester lubricants. Experience has demonstrated that we now have one of the best equipped plants in the country.



APPLICATION ENGINEERING—Our files contain facts about hundreds of successful Cellulube applications in many industries. Celanese engineers have the experience and interest to help you make the most of these functional fluids.



QUALITY CONTROL—Celanese zealously guards the quality of Cellulubes by a system of constant checks and controls. Physical and chemical properties are strictly maintained within exacting limits to assure you of optimum performance for fire-resistance and lubrication. What's more, Cellulubes have passed the most rigorous tests that the military and some of America's largest companies could devise.



TECHNICAL ASSISTANCE—Our technical staff provides assistance to see that the changeover from conventional fluids to Cellulubes is made as quickly and easily as possible. In many cases, our salesmen provide all necessary conversion know-how.

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Management



Business Issues

RON AGE IRON AGE IRON AGE



National Goals



Dollar Series



Capital Goods

IA Highlights of '60

This week you'll find our 106th Annual Issue jampacked with business forecasts for New Year, 1961.

But in wrapping them up, the editors could not help looking back on some of the outstanding features of the Old Year, 1960.

Nothing could top the interest generated by the 1960 presidential elections. The IRON AGE covered the business issues in two exclusive interviews with GOP Platform Chairman Charles H. Percy and Democratic National Committee Chairman, Sen. Henry M. Jackson.

Management Issues — Human problems are always with us and 1960 was no exception. But Dr. F. J. Gaudet's series on the causes for executive success or failure was exceptional. It drew the biggest reader reaction of the year.

Foreign competition became more intense in 1960. The problem was put into perspective for The IRON AGE at midyear by David Rockefeller, then vice chairman of The Chase Manhattan Bank, and other Chase foreign-trade experts.

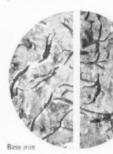
Technology was moving ahead in 1960 and so was our staff's reporting of it. Our Metalworking Dollar series continued as strong as ever. A 16-page report on Special Machining Processes rounded out the fifth successful year for the series.

Industry Spending — Close tabs were kept on the direction of capital goods spending throughout 1960 by quarterly surveys of metalworking capital appropriations conducted for The IRON AGE by the National Industrial Conference Board.

One of the most important documents to come out of Washington in 1960 was the nonpartisan report of the president's Commission on National Goals. The IRON AGE brought readers the business aspects before any weekly magazine and was out with its interpretive cover story a scant two days after the story hit the front pages.

Straits Report

Tin reduces wear-The addition of up to 0.1% tin has a marked effect in eliminating ferrite from the matrix of both gray and nodular irons, producing a wear-resistant fully pearlitic matrix.



Effect of tin on pearlite in microstructure of hypoeutectic cast iron bar, 1,2-in, dia

The amount of tin added to cast iron sections up to 3 in, thick is not critical. A reasonable excess does not produce any massive cementite or affect mechanical properties.

Organic compounds of tin stabilize vinyl chloride polymers to inhibit color at high temperature and to protect against decomposition during processing and degradation in service.

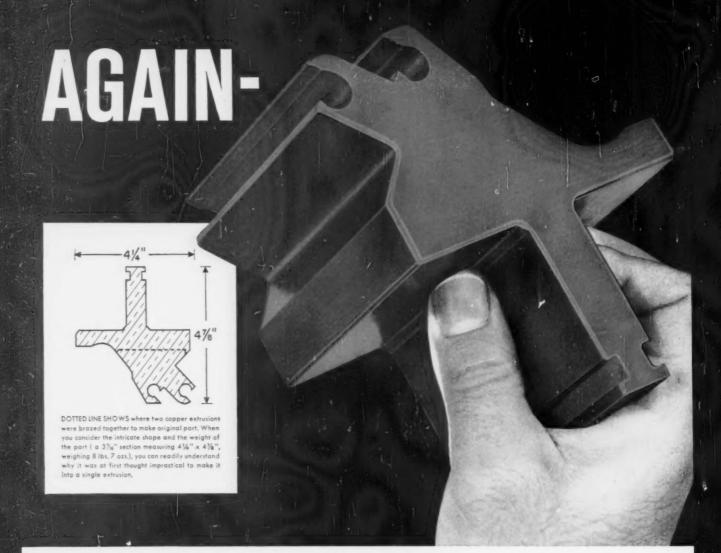
Low linear contraction is a property of high tin content die-casting alloys. Tin alloys shrink very little, permitting close tolerances and very thin walls in such typical small castings as pinions, numbering machine wheels, dashpots of electrical instruments, and gas meter grid valves.

FREE Bulletin

Write today for a free subscription to TIN NEWS-a monthly bulletin on tin supply. prices and new uses.



The Malayan Tin Bureau Dept. T-54A, 2000 K Street, N.W., Washington 6, D.C.



Revere helps "fit the metal to the job"

AND ONE COPPER EXTRUSION REPLACES TWO, SAVING TIME AND MONEY WITH CONSIDERABLE INCREASE IN LIFE OF PART

The Revere Copper Extrusion shown above was originally two extrusions brazed together. And, since it is quite an intricate shape, and weighty, it was at first thought impractical to make as a single extrusion, but the possibility was believed to be worth investigating.

Through close collaboration between the manufacturer's engineering department and the Revere Methods and Production Departments, it was found possible to combine these two sections into a single extrusion. Work was started, dies were made and test runs conducted. The tooling (for hot extrusion was followed by cold drawing) posed special problems. It had to be both rugged and precise in order to produce this monster to the manufacturer's exacting specifications. Finally, a sample extrusion was delivered to the customer for testing and found to be right in every way.

Not only does this new, single extrusion eliminate a great deal of machining but obviates the necessity of purchasing two separate extrusions and brazing them together. This means substantial savings in dollars and time involved, plus a longerlasting part, because the heat required to join the two pieces originally used, tended to soften the built-up unit, thus shortening its useful life.

So, before you give up on what at first may seem an insoluble problem, why not call in Revere's Technical Advisory Service? It's entirely possible they can help you "fit the metal to the job" with a resultant saving in the production of a superior product.



REVERE

COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, N. Y. Sales Offices in Principal Cities. Mills: Rome, N. Y.; Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.; Las Angeles, Riverside and Santa Ana, Calif.; New Bedford and Phymouth, Mass.; Brooklyn, N. Y.; Newbort, Ark.; Bt. Calbonn, Neb. Distributors Everywhere.

COMING EXHIBITS

Plant Maintenance & Engineering Show — Jan. 23-26, International Amphitheatre, Chicago. (Clapp & Poliak, Inc., 341 Madison Ave., New York 17.)

International Heating & Air-Conditioning Show—Feb. 13-16, International Amphitheatre, Chicago. (International Exposition Co., 480 Lexington Ave., New York 17.)

MHI Pacific Coast Show—Feb. 22-24, Cow Palace, San Francisco. (Material Handling Institute, Inc., One Gateway Center, Pittsburgh 22.)

Western Metal Show—March 20-24, Pan Pacific Auditorium, Los Angeles. (American Society for Metals, Metals Park, Novelty, O.)

MEETINGS

JANUARY

The Institute of Scrap Iron & Steel, Inc.—Annual convention, Jan. 8-11, Hotels Fontainebleau and Eden Roc, Miami Beach, Fla. Institute headquarters, 1729 H St., N. W., Washington 6, D. C.

Aluminum Window Mfrs. Assn.— Annual meeting, Jan. 9-12, Emerald Beach Hotel, Nassau, Bahamas, Association headquarters, 630 Third Ave., New York.

Society of Automotive Engineers, Inc.—Annual meeting, Jan. 9-13, Cobo Hall and Convention Arena, Detroit. Society headquarters, 485 Lexington Ave., New York, N. Y.

Hoist Manufacturers Assn., Inc.— Annual meeting, Jan. 10, Statler Hotel, Cleveland, Association headquarters, One Thomas Circle, Washington.

Steel Shipping Container Institute, Inc.—Winter meeting, Jan. 17-18, St. Regis Hotel, New York. Institute headquarters, 600 Fifth Ave., New York.

Steel Plate Fabricators Assn.—Annual meeting, Jan. 18-20, Logo (Continued on P. 24)

"CALL FOSTER... THEY'LL SHIP PIPE PLUS"



Right! Whether it's a routine order or an emergency request for unusual or hard-to-get sizes, Foster gives you pipe "plus."

You get all your pipe when and where you need it, cut to length or fabricated in complete-package shipments, at lowest possible cost.

For non-pressure applications, check the unusual savings on Foster Structural Pipe. Foster's nationwide warehouses stock Tested & Structural Steel Pipe, 1/8" through 48" in all sizes and walls—"plus" Stainless, Seamless, Alloy, Pressure, Aluminum, Wrought Iron, PVC Pipe and Valves, Fittings, Flanges.

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Faster From Foster



Hundreds of companies have saved money, improved products and cut production waste as the result of opportunities presented by the Ryerson "Metalogikit."

How? This unique kit is a veritable portable service center...lets you explore many alternatives to material you now use. For example, you can compare several different cutting methods on the same piece of steel to see which is best for your application.

Following are a few random examples showing how Ryerson specialists, using the Metalogikit, have helped customers with a variety of problems—many similar to *hose you may face every day.

If you would like to put the Ryerson Metalogikit to work for you, call your Ryerson representative for a demonstration—for unbiased recommendations on steel, aluminum, plastics and metalworking machinery.

sparks new ideas and savings



Scratches and grooves normal to cold drawn, seamless tubing caused high manufacturing costs for a company making small, light-wall hydraulic cylinders. The small I.D. had to be honed to eliminate these faults—often too much metal was removed for proper piston fit. A Ryerson specialist suggested a switch to welded tubing. Using a sample from his Metalogikit, he pointed out the better finish that eliminates expensive honing. The switch was made with these results: higher production, low reject rate, improved product—plus lower purchase price per foot of tubing.



METALOGIKIT TURNS UP 400% PROFIT

Bidding on a routine job was delayed for one steel fabricator because of an unusual material requirement in the specs—calling for an insulating block of phenolic laminate. For help, the company turned to its Ryerson representative, who showed a sample of Ryertex® sheet stock from his Metalogikit. In addition to having the material available from stock, he was able to show how easily it could be fabricated. This Ryerson know-how, demonstrated by the Metalogikit, enabled the customer to enter his bid on time. He got the job, and made a 400% profit.



Fractures and rejects were extremely high for a manufacturer cold forming two severe bends in flat, hot rolled bars. A Ryerson specialist examined the 3½" x 2" bar stock and compared it with a sample of M-1020 flattened round bar from his Metalogikit. He explained how controlled carbon of Ryerson M-1020 bar would produce great cost-saving advantages in this operation over hot rolled, mild steel. After specs were changed to this Ryerson-supplied bar, fractures and rejects were substantially reduced—resulting in new profitability.



STAINLESS FROM KIT LEADS TO SAVINGS

This company had an emergency requirement for stainless sheets. Application had always called for Type 304, 16 ga. x 66" x 81", polished on one side. Their Ryerson specialist questioned the need for polishing. From his Metalogikit, he showed them a sample of 304 with a 28 finish. The company readily agreed it was exactly the finish needed without polishing—saving delivery time and material cost. The Ryerson man further suggested 16 ga. x 72" x 144", using the cut-off pieces for another job—reducing scrap waste on both requirements. Order was placed and delivered in plenty of time. Over-all result: a substantial saving.



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RYERSON STEEL
Joseph T. Ryerson 4 Son, Inc., Member of the MAID Steel Family

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NEW...ALL NEW...FROM



MEETINGS

(Continued from P. 21)

Mar Hotel, Fort Lauderdale, Fla. Association headquarters, 105 W. Madison St., Chicago.

Industrial Heating Equipment Assn., Inc.—Annual winter meeting, Jan. 23-24, Dearborn, Mich. Association headquarters, 2000 K St., N. W., Washington, D. C.

Instrument Society of America — Annual meeting, Jan. 23-25, Hotel Astor, New York. Society head-quarters, 313 — 6th Ave., Pittsburgh.

Society of Plastic Engineers, Inc.— Annual technical meeting, Jan. 24-27, Shoreham & Park Sheraton, Washington, D. C. Society headquarters, 65 Prospect St., Stamford, Conn.

National Tool & Die Manufacturers Assn.—Winter board meeting, Jan. 24-28, Biltmore Hotel, Palm Beach, Fla. Association headquarters, 907 Public Square Bldg., Cleveland.

Metal Lath Manufacturers Assn.— Meeting, Jan. 25-26, Pick-Carter Hotel, Cleveland. Association headquarters, Engineers Bldg., Cleveland.

Cutting Tool Manufacturers Assn.
—Annual business meeting, Jan.
26, Harmonie Club, Detroit. Association headquarters, 1216 Penobscot Bldg., Detroit.

National Assn. of Secondary Material Industries, Inc.—Midwestern Div. regional meeting, Jan. 26, Statler-Hilton Hotel, Detroit. Association headquarters, 271 Madison Ave., New York.

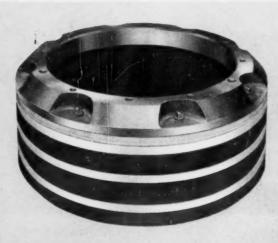
Truck-Trailer Manufacturers Assn., Inc.—Annual convention, Jan. 29-Feb. 1, Hollywood Beach Hotel, Hollywood, Fla. Association head-quarters, 710 Albee Bldg., Washington, D. C.

Steel Kitchen Cabinet Manufacturers Assn.—Midyear meeting, Jan. 31, Sheraton Towers Hotel, Chicago. Association headquarters, 910 Park Bldg., Cleveland.

REDUCE DOWN TIME

with Gardner tape bound cylinder wheels

continuous, uninterrupted production eliminates operator hazard higher strength with tapes an integral part of wheel



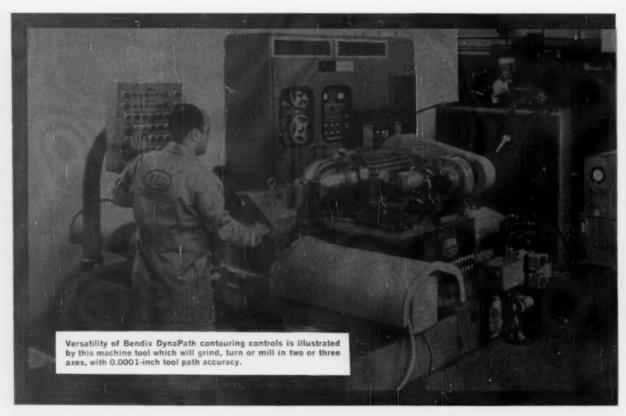


Glass fibre tapes grind away as wheel wears...eliminate production stoppages required for removal of wire binding.

CARTNER abrasive discs

BENDIX PROVIDES SYSTEMS EXPERIENCE TO MAKE NUMERICAL CONTROL WORK FOR YOU

Numerical control is a proved concept in metalworking. It has demonstrated its worth in scores of applications, but perhaps your manufacturing problems are different. Why not enlist the services of Bendix—long-time supplier of practical, reliable numerical control systems to most major machine tool builders. Let us be your prime source of information and assistance when the demand for increased productivity indicates a need for more modern equipment that will reduce scrap, reduce lead time, reduce inventory costs, and reduce tooling costs. Whether it's contouring, positioning or measuring, Bendix has the solution to your particular problem.



YOU NEED BENDIX SYSTEMS EXPERIENCE when you consider numerical control for your application! Bendix offers:

- 1 JUSTIFICATION STUDIES—what can numerical control do for you?
- 2 SYSTEM ENGINEERING—applying the right control to the right machine tool.
- 3 TRAINING AND SERVICE—for maximum machine utilization rates.

The unique Bendix Systems Experience is backed up by a staff of experienced electronic, mechanical and hydraulic engineers, mathematicians, instructors, technicians, and parts planners. Our contract machining and tape-making facilities offer years of accumulated case histories on all manner of applications and a chance to check out your problems in actual practice. Why not write today for more information on Bendix Systems Experience.

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for Every Gear Production

Job

Right from the blank to the finished external or internal spur or helical gear, Fellows has the complete line of gear production and inspection equipment to meet all your requirements!

No other builder in the world offers as long and varied a line: Fellows Gear Shapers; Pfauter Gear Hobbers; Fellows-Reishauer Gear Grinding Machines; Fellows Gear Inspection Instruments; Fellows special machines and attachments; Fellows Gear Shaper Cutters. All this, plus the benefit of our sixty years of specialized experience in solving gear production problems.

Ask your Fellows representative for information on the complete line of Fellows gear production and inspection equipment. If you have a problem requiring special equipment, ask him to help you solve it, or write direct.

Fellows Has the Equipment to Shape, Hob, Grind and Inspect



Fellows Gear Shapers cut internal and external spurs and helicals; capacities to 120" P.D.



Pfauter Gear Hobbing Machines for spur and helical gears; capacities to 120" P.D.



No. 12 Fellows-Reishauer Gear Grinding Machines grind spurs and helicals to 12" O.D.



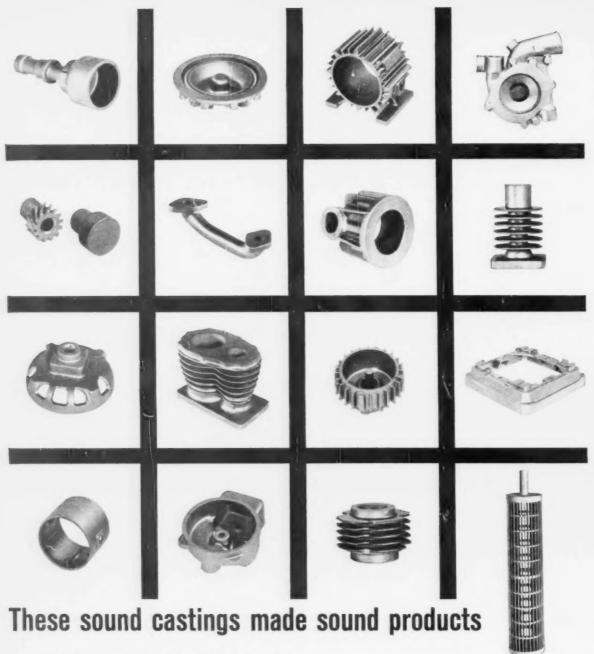
No. 20M Fellows Red Liners make and record the "composite check" of spur and helical gears to 18" P.D.

THE FELLOWS GEAR SHAPER COMPANY 78 River Street, Springfield, Vermont

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THE PRECISION Course Gear Production Equipment



Gray and alloyed iron castings are continually being called upon to do more exacting jobs. Parts are now designed and cast to meet strength and weight standards precisely. Overdesign or "rule-of-thumb" casting procedures mean penalties in weight, size or cost. Under-design or casual production controls reduce quality and dependability of the end product.

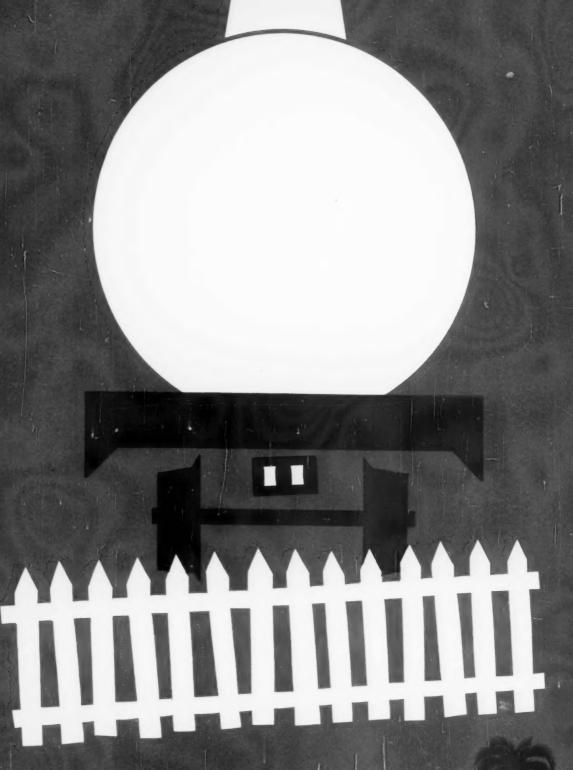
These castings were engineered to specifications at The Decatur Casting Company where high quality standards govern every step of the production process. Heat treating, when required, was done in our own furnace. The customers ordered castings to specification—and got what they ordered in every casting.

Decatur Quality Castings® are supplied in weights from a few ounces to 100 pounds. We suggest you consult us on your next casting requirements.



CASTING.

Light Gray Iron and Alloyed Iron Castings Decatur, Indiana Phone: Decatur 3-2700

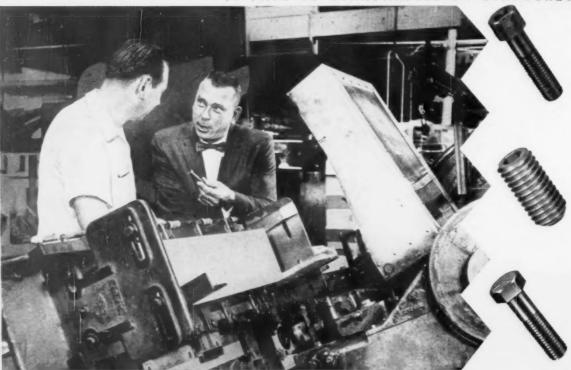


IM YOUR OWN BACKYARD, Ironsides specialists formulate all-damestic roli-oils and other lubricants to meet your special mili requirements for increased speed and uniformity of production.

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Stanscrew solves production problem, saves money for Ball closures

The specialized machines which every day turn out millions of jar tops, bottle caps, and other closures for Ball Brothers Company, Inc. must work to a very tight production schedule. Fastener failures in this equipment can be extremely costly.

One particular application was a real headache. Even specially designed fasteners failed time and time again. Ball's distributor then called in the Stanscrew fastener specialist. His recommendations included minor redesign, the use of a particular standard fastener from Stanscrew's complete selection, and detailed instructions on its application. This eliminated many production interruptions for Ball . . . for important savings.

Whether you need fasteners for the maintenance of important production machinery or as components of your finished product, you can often save money by standardizing on Stanscrew . . as more and more industrial leaders are learning. Stanscrew offers a complete stock of 5,500 different standard fasteners . . . produced to the highest quality standards made possible by American technology . . . to provide economical answers for the overwhelming majority of all industrial fastener requirements.

The suggestions and technical assistance of the Stanscrew fastener specialist may result in significant savings in your assembly and maintenance costs. Your local Stanscrew distributor will be happy to arrange a prompt visit. Call him today.



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STANDARD SCREW COMPANY 2701 Washington Boulevard, Bellwood, Illinois



Experience counts . . . and Jessop has it

There is no substitute for experience in making steel for the reactors of nuclear submarines like the Nautilus, the Skate and the Polaris-firing George Washington. Jessop's activity in nucleonics dates back to the early days of the Manhattan Project.

Today, Jessop's still at it—continuing research, improving techniques, piling up experience in making sophisticated steels to harness the atom. And Jessop is out front in other steelmaking fields too.

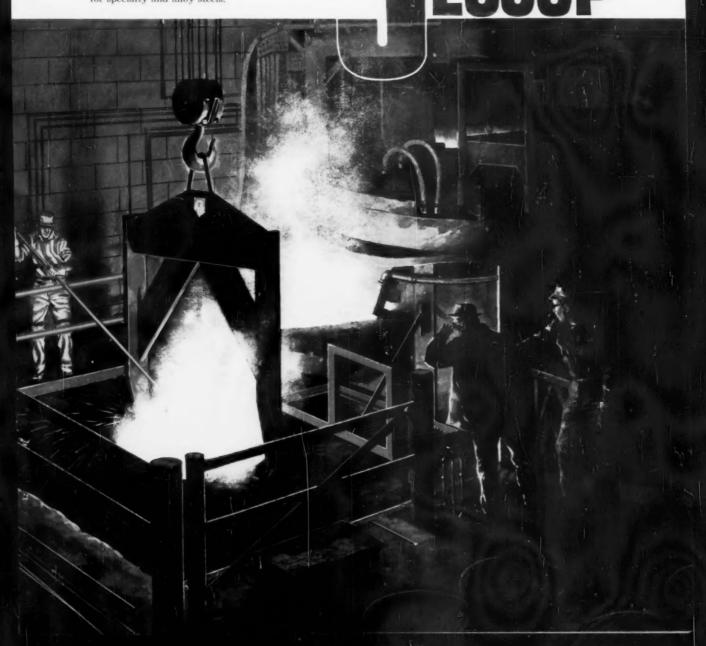
Whether you use heat- or corrosion-resistant stainless steels; abrasion- or shock-resistant steels; nonmagnetic or precision ground steels; high speed, cast-to-shape, clad or alloy steels, you can be sure of the quality—and service—you'll get when you do business with Jessop.

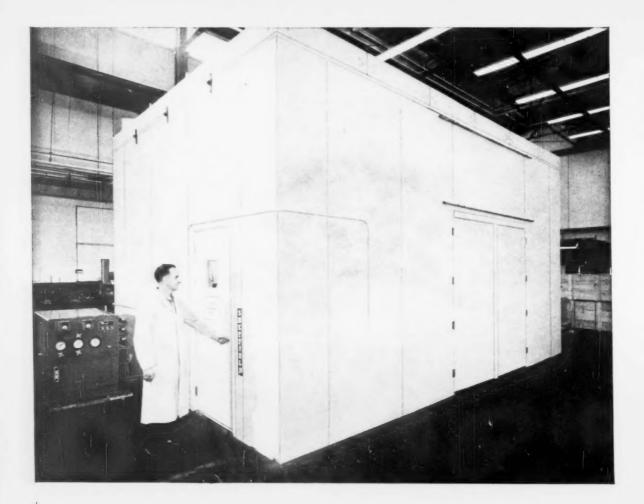
In quality steelmaking experience counts, and Jessop has it. Call a Jessop sales office in any of 23 major cities of North America and discuss your needs for specialty and alloy steels.



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Erect Sheffield PRE-FAB-LAB° in 2 to 3 days

The new Sheffield Pre-Fab-Lab[®] is an enclosure you can build readily from modular units, to provide a controlled environment for gage laboratory or "white room" precision assembly or machining areas for substantially less than the cost of a permanent installation.

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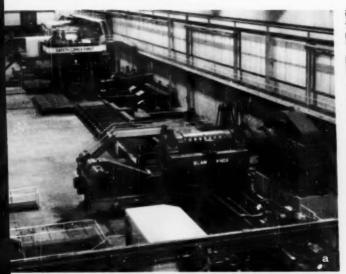


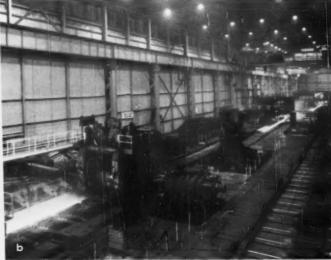
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Inspection Gages, Dimensional Control Instruments, Machine Controls, Automatic Gaging & Assembly Systems, Measuray® X-Ray Thickness Measuring, Crushtrue® & Multiform® Grinders, Cavitron® Ultrasonic Machine Tools, Press-Pacer® Transfer Units, Large Dies, Tooling, Contract Manufacturing.

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Rolling Mills and Processing Equipment for Shape Rolled Products

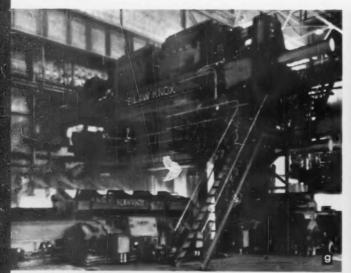
a Combination 46- x 114-inch Blooming-Slabbing Mill and 38- x 53- x 114-inch 4 high Plate Mill. ▶ Wide Flange Beam and Structural Mill. ▶ Merchant Mill.

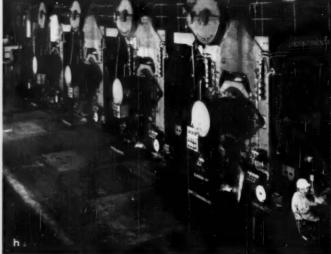
Rolling Mills and
Processing Equipment for
Shape Rolled Products (Continued)

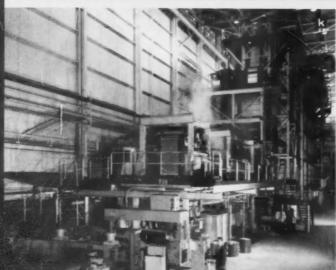
d Continuous Butt Weld Pipe Mill. High Speed 2-roll Straightener in Cold Drawn Bar Line. Roller Straightener for Hot Rolled Angles.

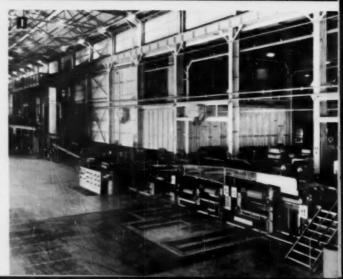


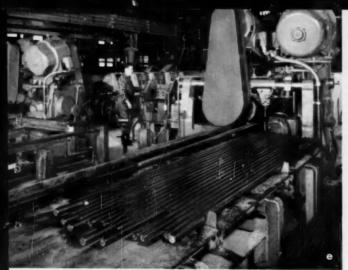
BLAW-KNOX

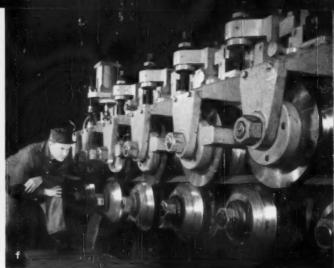




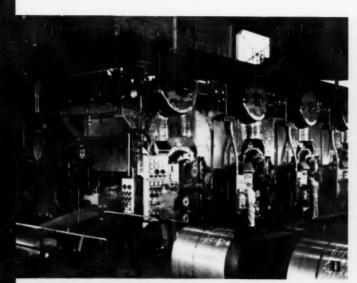


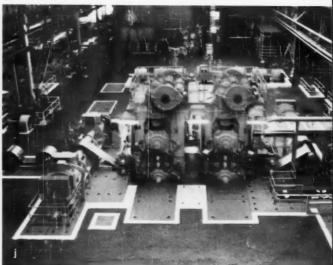


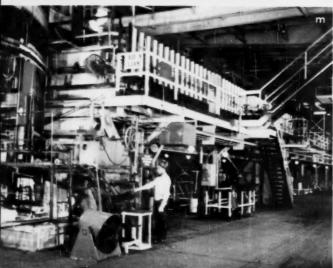




BLAW-KNOX







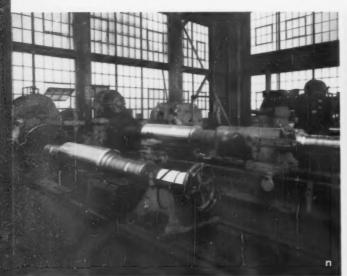
Rolling Mills and Processing Lines for Flat Rolled Products

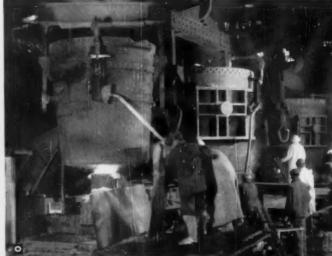
9 46- x 90-inch Universal Slabbing Mill. h 56-inch Hot Strip Mill. 60-inch Tandem Cold Strip Mill. 1 19- and 53-inch x 48-inch Twin Temper Mill. Continuous Annealing Line. Electrolytic Tinning Line. Continuous Galvanizing Line. ■Iron, Alloy Iron, Steel and Alloy Steel Rolls.

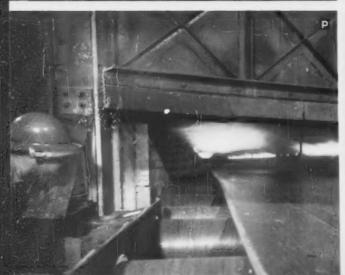
Pots, Charging Boxes, Ingot and Charging Cars, Ladles, Trunnions and Rings, Blast Furnace Hoppers and Bells. E High Alloy Castings: Radiant Tube Assemblies, Furnace Parts, Continuous Annealing, Conveyor, Feeder, Deflector and Zinc Rolls, and Heat Exchanger Elements.

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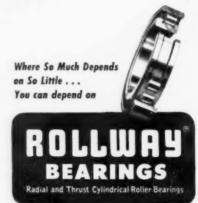
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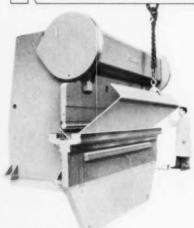
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3 BENDING ROLLS
Up thru 10" diam. in working lengths to 14 ft.

NIAGARA

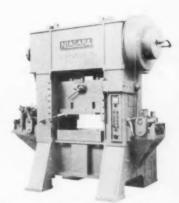
HAS THEM ALL!



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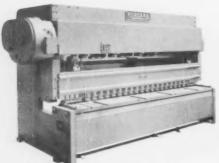


5 STRAIGHT SIDE ECCENTRIC GEARED PRESSES
One, two, and four-point suspension. 100 thru
1250 ton capacities



6 AUTOMATIC FEED HIGH PRODUCTION PRESSES 25 thru 300 ton capacities

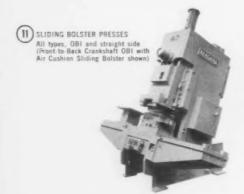
most modern and complete line of presses, press brakes, and shears

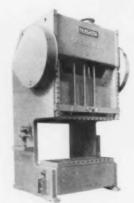


GAP FRAME POWER SQUARING SHEARS
12 gage to ½" capacities in lengths
from 4 to 24 ft.

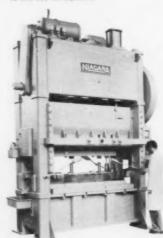


RING CIRCLE SHEARS & FLANGERS
20 gage thru 1/4" for circles 31/2" thru 72" diam

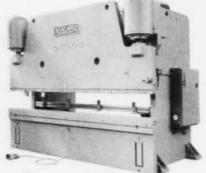




B GAP FRAME DOUBLE CRANK PRESSES Upright and inclinable, 45 thru 200 ton capacities



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14 DEEP THROAT FRONT-TO-BACK

(15) ADJUSTABLE BED PRESSES

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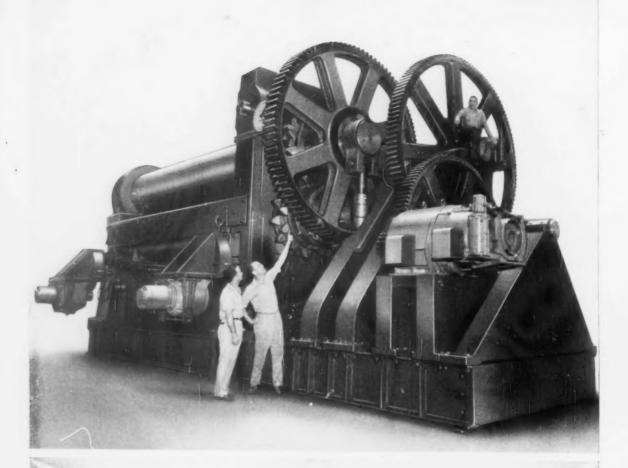


PLATE BENDING ROLLS INITIAL PINCH TYPE

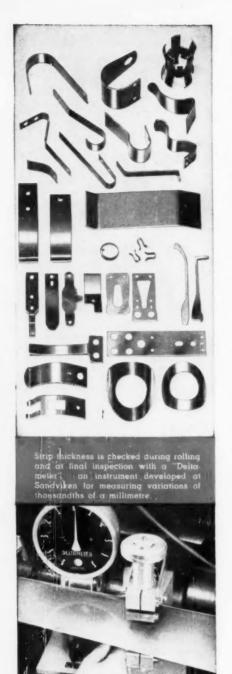
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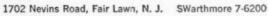
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Buffalo' Machine Tools to dri punch, shear, bend, slit, notch and cope for production



'Buffalo' Centrifugal Pumps to handle most liquids and slurries under a variety



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to process sugar cane, caffee
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Buffalo' Centrifugal Pur to handle most liquids slurries under a variety of conditions.



to process sugar cane, coffee and rice. Special processing machinery for chemicals.



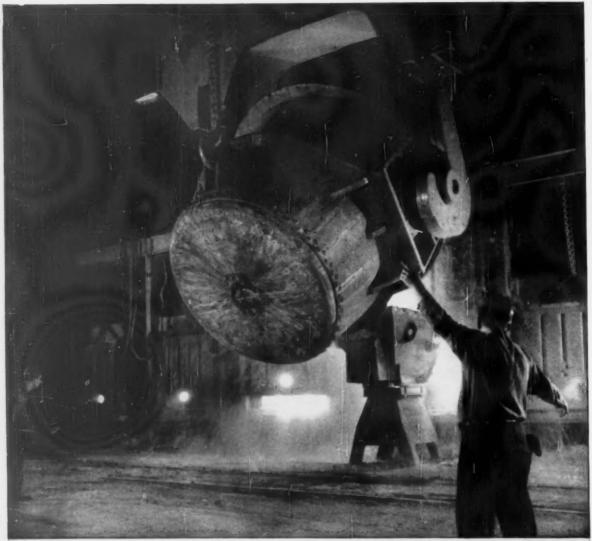


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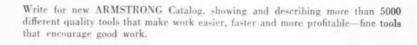
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CHICAGO 46, ILLINOIS

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Scheduled for fleet delivery in 1961, the all-weather Kaman HU2K "SEASPRITE" was developed to meet *high-performance* requirements of the U. S. Navy. Working closely with Kaman design engineers, Republic Steel is supplying light gage titanium and stainless steel for the HU2K.

Selected for its resistance to corrosion and abrasion, stainless is used in leading edges of the rotor blades. The titanium—Type RS140—is used in 1½" x 18" strips. Assembled in bundles of 88, these strips are machined into retention straps that are a vital component in the rotor system.

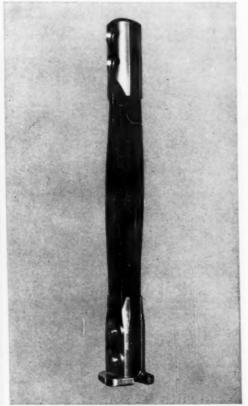
May we help you utilize high-performance metals in your project? Republic is the nation's largest producer of alloy and stainless steels, and a major producer of titanium. Republic has the most extensive vacuum-melting facilities ever assembled. For complete details, contact your Republic representative or mail the coupon.



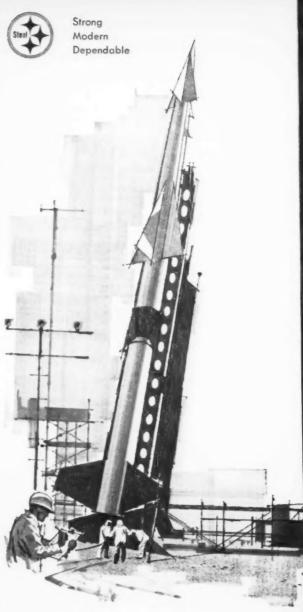


REPUBLIC PH STAINLESS STEELS: Type PH 15-7 MO for missiles and aircraft offers high ultimate tensile strength with excellent mechanical properties to 1000°F. Type 17-4 PH for shafts, gears, pins and other components requires only a one-hour heat treatment at 900°F to develop its full strength (ultimate tensile strength to 200,000 psi). Type 17-7 PH for pressure tanks, bellows, springs, and other applications provides better corrosion resistance than the hardenable grades of chromium stainless. Send for PH Stainless Steel Booklet.

REPUBLIC VACUUM-MELTED METALS are produced in 18- to 32-inch diameter ingots weighing from 4,000 to 20,000 pounds. Vacuum-melted super alloy steels, constructional alloy steels, high strength alloy steels, bearing steels, stainless steels, titanium, and special carbon steels are available from Republic in plates, billets, bars, sheets, strip, and wire. Mail coupon for complete information.



BUNDLED TITANIUM RETENTION STRAPS are designed to work through a torsion angle of $\pm 13^\circ$. Each strap provides a minimum tensile strength of 155,000 psi. The HU2K "SEASPRITE" is manufactured by the Kaman Aircraft Corporation, Bloomfield, Connecticut.



REPUBLIC STEEL REPU

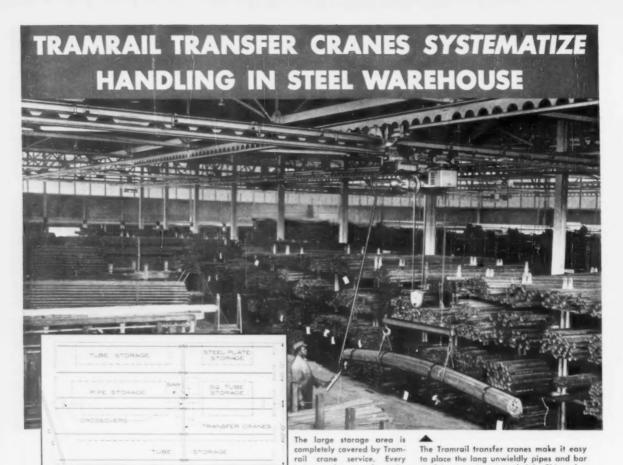
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A LARGE modern warehouse at Atlanta, Georgia, was designed to make use of overhead Tramrail equipment to enable the handling of large unit loads in and out of storage with the least effort and in the quickest time.

217.2

The principal storage section is provided with two parallel runways each having three tracks. On both runways is a 64-foot transfer crane that travels the length of the room. Cross-overs are provided, enabling a hoist carrier transferring from one crane to the other. This makes it possible to haul materials between any two points in the entire area without rehandling.

Steel is constantly on the move in this active

stock into storage at any height. This makes floor and readily reached with the two transfer cranes.

plant. From 60,000 to 70,000 lbs. are brought in by railroad car daily and like amounts are

plant. From 60,000 to 70,000 lbs. are brought in by railroad car daily and like amounts are shipped out. The material is unloaded from railroad cars at one end of the building and placed into storage. It is shipped out on trucks which are loaded at the other end.

The overhead crane system makes it possible to place incoming materials into allotted storage spaces at once. The need of storing temporarily in aisleways or other areas and extra handling which this entails is eliminated. Thus, the warehouse is kept orderly at all times and every item is readily seen and conveniently reached. Danger of handling accidents is minimized and overall efficiency is unusually high.

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THE CLEVELAND CRANE & ENGINEERING CO.

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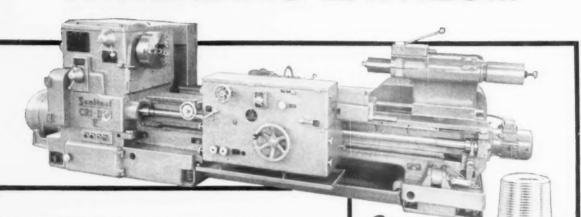
TRAMRAIL

OVERHEAD MATERIALS HANDLING EQUIPMENT

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THREADING LATHES...



faster than thread grinding or milling...handles toughest jobs on hardest materials at less cost-distributed by

GISHOLT

Widely used throughout Europe and rapidly gaining favor in the U.S.A., CRI-DAN High-Speed Threading Lathes offer outstanding advantages on a wide variety of threading work. Using singlepoint carbide tools and positive, cam-controlled movements, CRI-DAN provides very accurate lead and thread form on all types of internal and external threads, including multiple-start, coarse, fine, left- or right-hand, parallel or taper, with metric or inch pitches. Highest production, accuracy and fine finish are assured on even the most difficult materials.

With simple operation and 15 minute change-over, CRI-DAN is an extremely versatile machine capable of handling an amazing range of components at high production rates. Single-point carbide tools, easily resharpened or replaced, cut tooling costs to a

Two models are available with a full complement of accessories to meet your needs. Ask your Gisholt Representative for full details or write



Turret Lathes • Automatic Lathes • Balancers • Superfinishers **Threading Lathes**



How to achieve higher cost-reduction objectives with new bench-type hydraulic Multipress.

By: J. S. Tipton

Multipress Product Manager Denison Engineering Division American Brake Shoe Company

Utilizing the inherent smoothness, speed and accuracy of controlled hydraulic power, this new Denison "R-S-T" Series Multipress opens up important new opportunities for cutting production costs on virtually every type of pressing operation. Punching, riveting, assembling, staking, forming, marking and trimming are only a few of the numerous production jobs Multipress can perform faster, more accurately and at lower cost.

The advanced design features described below make this new Multipress a versatile cost-reduction tool on both small lots and high production runs.

Because it is so compact and requires so little space, Multipress is ideal for a continuous line operation where a series of presses is run side-by-side. For automatic operations, Multipress can be mounted around dial tables, feed mechanisms and indexing fixtures to keep tooling costs to a minimum. And controls can be actuated automatically from external sources, making it easy to interlock Multipress with other automated production operations.

CLEAN, COMPACT DESIGN

The cutaway illustration on the opposite page shows the basic components of the new Multipress. These

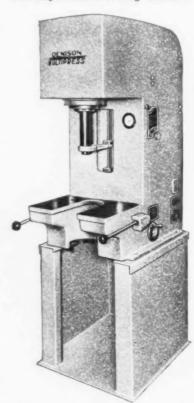
include the frame, oil reservoir, hydraulic pump and its electric motor, and the ram-and-cylinder assembly. Note the rugged, extremely simple and compact design.

Briefly, here's how the Multipress operates: The electric motor drives a balanced-vane, cartridge-type hydraulic pump, which draws oil from the reservoir and delivers it under pressure to the ram-action control valve. The valve is actuated when the operator depresses the dual control levers. Oil under pressure flows into the top of the cylinder, forcing the piston and ram down on the work. Ram action is non-rotating, shockless and quiet. When the control levers are raised, oil flows through the lower cylinder port, forcing the piston and ram upward. High-fidelity control of ram speeds, pressures, strokes and ram action is accomplished manually, automatically or electrically by using any one of 18 different operating and basic control valves. The Multipress unit is complete with self-contained piping, control and power circuitry.

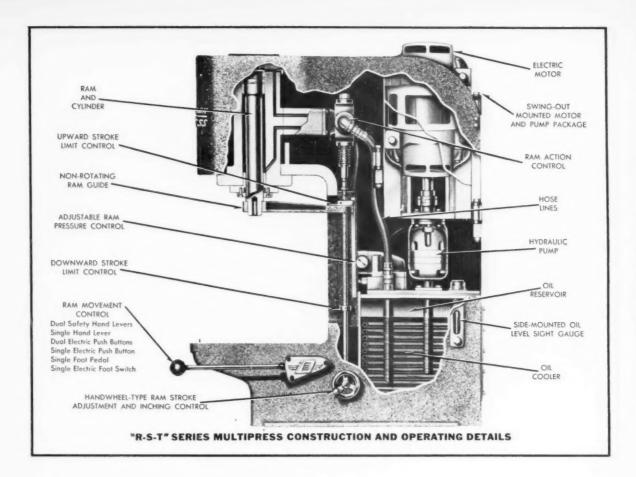
ADVANCED FEATURES

An important consideration in the selection of a Multipress is its rapid ram approach feature. The true productive time of a press is only during the actual pressing stroke. Multipress reduces non-productive time 85% by increasing the speed of ram approach and ram return. This time-saving allows more cycles-per-minute, more pieces-per-hour—and can result in significantly lower unit production costs.

Another cost-reduction benefit is afforded by faster, simpler tooling and set-up. Greater daylight, larger bed area and throat dimensions provide easy access to tooling. The task



COMPLETELY NEW IN DESIGN. "R-S-T" Series Multipresses are available in three size and capacity ranges: "R"—1 to 6-tons, "S"—3 to 8-tons, "T"—4 to 12-tons. Unit above is shown mounted on optional bench accessory.



of mounting and setting the press tooling is simplified considerably. The handwheel-type ram stroke adjustment and inching control quickly set the upper limit of the ram stroke, and allow the operator to "inch" the ram to the work under controlled pressure with high accuracy.

SAVES OPERATOR TIME AND WORK

A control knob, conveniently located on the side panel of the press, permits quick adjustment of ram pressure. This arrangement is a great saver of spoiled work and lost time during set-up operations. The operator simply checks the pressure gauge to determine working pressure necessary to accomplish the job. By adjusting the control to that pressure, the ram will travel no further after the work is accomplished. This prevents harmful pressures from being exerted on individual pieces of work even though they may vary in size.

A pushbutton valve for the pressure gauge provides instantaneous check of ram pressure, and keeps the gauge out of the circuit during pressing operations for maximum gauge protection and long life.

BUILT TO J.I.C. STANDARDS

The "R-S-T" Series Multipress is designed to J.I.C. specifications. The swing-out, J.I.C.-mounted motor and pump package make it easy to inspect and service the press. Because the motor and pump are mounted on a single, vertical bracket hinged to the press frame, quick accessibility to all controls is possible by simply swinging the complete motor and pump unit out of the frame housing.

The Multipress frame itself is rigid, multi-piece welded steel construction. It is designed and fabricated for .001" deflection per ton.

Both the base and the press bed are recessed to provide more knee room for the operator. All operating and adjustment controls are located "up front" for greater operator efficiency.

In the Denison Multipress design, precision control of ram speeds, ram pressures, ram strokes, ram actions—

means tremendous press *versatility* and insures complete uniformity of finished work regardless of variations in work sizes, materials, work positioning or other variables.

A complete line of tailored accessories is available for use with "R-S-T" Series Multipress, including benches, bolsters, index tables, feed mechanisms, touch control and knockout rams.

WRITE FOR FREE CATALOG

Operating data and specifications on the new "R-S-T" Series Multipress, plus information on the complete line of other one to 100-ton capacity Multipress units, are available from your nearby Denison hydraulic press specialist. Call him, or write to us for Bulletin 324 and the new 26-

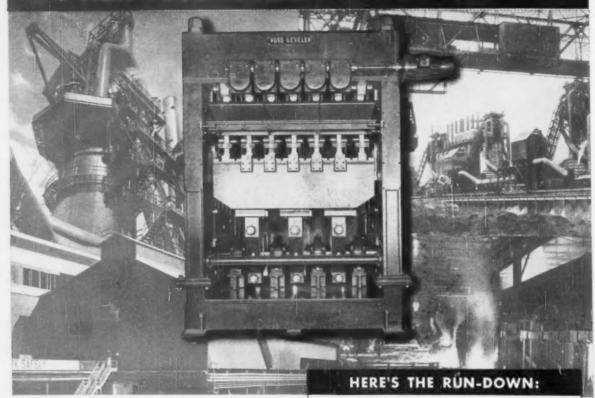
page Catalog 120.

DENISON ENGINEERING DIVISION

American Brake Shoe Company

1242 Dublin Road . Columbus 16, Ohio

8 NEW VOSS LEVELERS AT U.S. STEEL!



VOSS VERSATILITY DEMONSTRATED IN LEVELER APPLICATIONS AT U. S. STEEL

The United States Steel Corporation has been using Voss Levelers for many years. During the past 2 years, U. S. Steel has again shown its confidence in Voss by ordering eight new levelers for installation in various plants. The applications are varied, ranging from galvanized and cold-rolled to plate and high-yield missile stock. Exclusive patented Voss principles enable all users to get better than stretcher-level flatness under most conditions, and at high production speeds . . . results unobtainable with any other leveler.

Voss Inverted Roller Levelers are designed for ferrous and non-ferrous metals in a wide variety of applications. Let Voss put 30 years of leveling experience to work for you.

INSTALLED:

GARY SHEET AND TIN MILL
Application: Tin Plate Installed: 1958

IRVIN WORKS

Application: Cold-rolled Shear Line Installed: 1959
Application: High-Speed Galvanizing Line Installed: 1960

VANDERGRIFT WORKS

Application: High-yield Missile & Stainless Steels Min: .062 Max: .1876 Installed: 1960

ON ORDER:

GARY SHEET AND TIN MILL

Application: Hot and Cold-rolled Steel Plate
Min: .062 Max: .250, 75" width Installation: Late 1960

IRVIN WORKS

Application: Cold-rolled Shear Line Installation: Late 1960

COLUMBIA-GENEVA DIVISION

Application: Cold-rolled Shear Line Installation: Early 1961
Application: High-Speed Galvanizing Line Installation: 1961





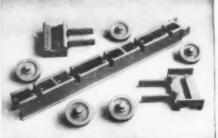
- HOM, a new alloy developed by
 Duraloy metallurgists and capable of retaining high working
 strength at temperatures up to
 2200°F, with limited application
 at 2300°F. The alloy is applicable for all types of castings:
 static, centrifugal, shell-molded.
- Shell-molded castings for meeting close and rigid tolerance limits; post-casting machining or other finishing practically eliminated; low mass production costs.

Illustrating 4 of Duraloy's Major Casting Services

If the casting used in your equipment has to meet high temperature (anything up to 2300°F) and/or corrosion, why not discuss your requirements with our metallurgical staff? Our company can call upon more than 35 years of experience in this exacting business of high alloy castings. In the meanwhile, if you would like to have a copy of our latest catalog, write or call our nearest office.



- Centrifugal castings which produce a denser, more uniform metal approaching forged metal strength.
- Static castings which can be produced in weights ranging from a few ounces to single castings 7 tons and heavier; wide range of alloying combinations, including the new HOM referred to above.





As a point of interest, all of the castings shown here were produced for Lindberg Engineering Company, Chicago, for incorporation in heat-treating and annealing equipment sold by that company. The centrifugally cast tube for the generator, trays, and rollers for the furnace rails are cast of HOM. The rails and rail supports for the furnace are statically cast of 35-15 alloy.





URALOY Company
OFFICE AND PLANT: Scottdale, Pa.

EASTERN OFFICE: 12 East 41st Street, New York 17, N. Y.

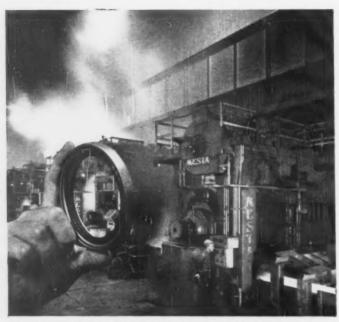
CHICAGO OFFICE: 332 South Michigan Avenue

DETROIT OFFICE: 23906 Woodward Avenue, Pleasant Ridge, Mich.





ENGINEERED OIL SEALS for Steel Mills



Garlock KLOZURE Oil Seals protect vital bearings from damage, add to efficiency of new Jones & Laughlin punch card-operated continuous mill at Aliquippa, Pa.

Jones & Laughlin Steel Corporation specifies Garlock KLOZURE* Oil Seals to protect important bearings on new punch card-operated mill at Aliquippa.

At dozens of vital locations on the 44" 4-Hi Continuous Mill—approach and runout tables, vertical edgers, coilers, rotary crop shears—the Garlock Klozure Oil Seals perform a double duty. They stop leakage of lubrication from the bearings, prevent harmful scale, spray, dirt from getting to the bearings.



In wide use today throughout the steel industry, Garlock KLOZ-URE Oil Seals are available in a wide range of

designs. For example, Model 142, a face-type Klozure, is designed to seal



surfaces perpendicular to shaft . . . keeps water splash and scale out of bearings at the shoulder of mill rolls. Models 64

and 82 are applied to large shafts at normal or high speeds . . . ideal for



protecting bearings on back-up and work rolls. Model 53 withstands temperatures up to 250°F at normal or high

speeds . . . recommended for table rolls. Where equipment can't be dismantled easily, Models 21 or 23 Split-KLOZURES are the choice.



Like Jones & Laughlin, many of the large steel

producers are enjoying the advantages of Garlock KLOZURE Oil Seals. For instance, all KLOZURES are oil and grease resistant . . . impervious to water, mild acids, alkalies . . . non-abrasive . . . withstand temperatures from $-40^{\circ}\mathrm{F}$ to $+250^{\circ}\mathrm{F}$. For extreme conditions, Garlock furnishes sealing elements resistant to practically any fluid, and serviceable as high as $+500^{\circ}\mathrm{F}$.

Enjoy these same benefits. Talk to your local Garlock representative about high-quality KLOZURE Oil and Grease Seals. Call him at the nearest of

GARLOCK

Garlock's 26 sales offices and warehouses throughout the U.S. and Canada. Or, write for KLOZURE Catalog 30. Garlock Inc., Palmyra, N. Y. Canadian Div.: Garlock of Canada Ltd.

Plastics Div.: United States Gasket Company

Order from the Garlock 2,000 . . . two thousand different styles of Packings, Gaskets, Seals, Molded and Extruded Rubber, Plastic Products.

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Easier Handling - Better Control!



Guaranteed to equal or exceed this chemistry

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Production experience has conclusively demonstrated the exceptional advantages in using this new, more effective flux - Glen-Spar - the preferred high purity fluorspar now available for every type of basic furnace practice.

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Besides praviding better control and closer chemical tolerances in melting operations (plus, less fluorspar required per ton of steel), Glen-Spar briquettes provide the ultimate for ease of handling and inventory control.

Through packaging in 450 brick cubes (approx. 1 ton), steel strapped onto wooden pallets to permit the use of mechanical lift equipment . . . impressive savings have resulted.

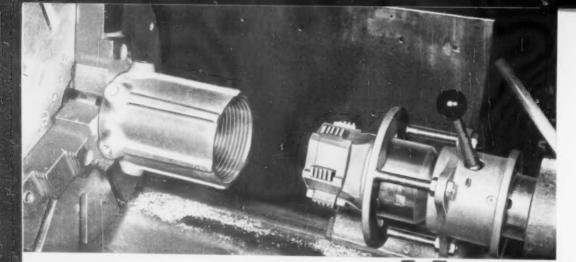
Would you like to receive a Glen-Spar briquette . . . free? Write to us.

EN-GERY SHALE BRICK CORPORATION

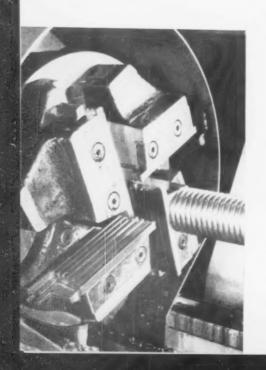
MINERAL PRODUCTS DIVISION

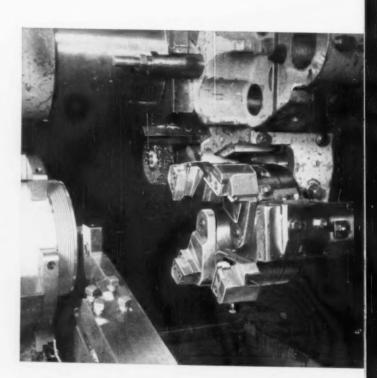
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cutting tools

DIE HEADS ... in a range of 1/8"-91/4" for thread-

ing machines, turret lathes, screw machines, reversing spindle machines, bar automatics. *Heat-Treated* types for economy, wide range coverage, quick set-up changes and oversize capacity. *Hardened and Ground* types for work on which extreme accuracy and maximum production are of prime importance. *Solid Adjustable* types for high production threading on reversing spindle machines.

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parallel threads, Receding Chaser Collapsible Taps for tapered threads. Both have wide diametrical range through use of detachable heads. Non-Collapsing Solid Adjustable types for high production tapping on reversible spindle machines. Special Taps are available.

CHASERS ... all Landis Die Heads use Landis Tangen-

tial Chasers featuring: interchangeability, natural cutting clearance, permanent throat, useable for most of their length, right- and left-hand threads with the same chasers, and changeable rake and lead angles. Landis Tap Chasers, manufactured with the same consistency of quality and experience as the Tangential Chaser, are "tailor-made" to suit the application to produce a high degree of thread finish and the maximum number of pieces between grinds.

The constant research for better threading methods which has brought to LANDIS leadership in its field today plays an even more important part in our activities. We offer all manufacturers our over 50 years experience in all phases of Threading. If you need help involving threads, whether design or production, or if you feel that your present threading methods should be improved, send us your specifications, or our representative will call at your convenience on request.

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Threading Machines



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Taps - Collapsible & Solid Adjustable

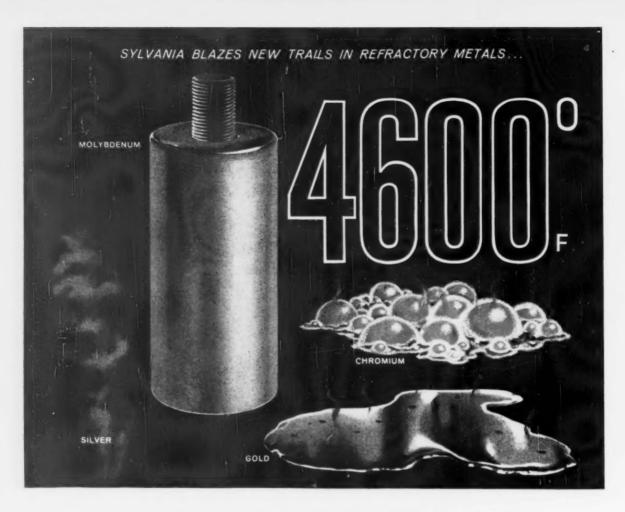


Centerless Thread





Thread Polling Marking



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At 4600°F. gold turns to liquid. Chromium boils. Silver vaporizes. But molybdenum stays solid.

At Sylvania, such high temperatures help our scientists turn defense research on tungsten and molybdenum into practical answers for industry.

For instance, not long ago we devised a new method in which refractory metals are produced as powder of controlled particle size. This powder is isostatically pressed at high pressure and then sintered at high temperatures. Result? Ingots, bars-even intricate shapes-can be produced more efficiently, with more uniform compaction. Why not take a good look at refractory metals to answer your needs. The identical properties that solve the problems of throat inserts for rockets and missiles can pay you dividends in die-casting dies and cores, hot-work tools, molds, and in many other ways.

Want the full story? Or experienced technical help in proving out your special ideas? Write Chemical & Metallurgical Division, Sylvania Electric Products Inc., Towanda, Pennsylvania.

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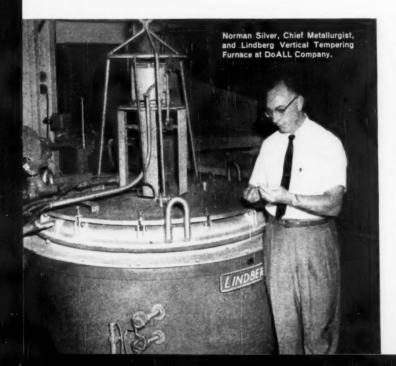


DoALL tells how
Lindberg equipment helps
produce stainless steel
gage blocks



For the DoALL Company, Des Plaines, Illinois, heat treatment of their Stainless

Steel Gage Blocks was a most formidable problem. For lasting accuracy these blocks require extremely hard, wear-resistant surfaces, free from growth or shrinkage, as provided by nitrided stainless steel. Case depth must be controlled accurately and the core maintained at full toughness free of stresses. DoALL found the answer to this problem with a Lindberg Gas Fired Vertical Cyclone Tempering Furnace with a Nitriding Retort.



NORMAN SILVER, Chief Metallurgist says, "Our Lindberg equipment supplies the uniformity of heat distribution and the fast accurate control that is needed for the exacting requirements of our product. The furnace responds to control almost instantaneously and maintains the temperature within plus or minus 5°. Its 38" diameter by 36" depth handles 200 to 300 pound loads for the desired production. Results obtained have satisfied us completely with this, the latest of our Lindberg furnaces".

Lindberg provides the most complete line of heat treating furnaces, fuel fired or electric, large or small, for every heat treating requirement. Your Lindberg Field Representative (see your local classified directory) will be glad to consult with you on your heat treating requirements or write us direct. Heat Treating Furnace Division, Lindberg Engineering Company, 2452 West Hubbard Street, Chicago 12, Illinois.

Los Angeles plant: 11937 S. Regentview Avenue, Downey, California. In Canada: Birlefco-Lindberg Ltd., 15 Pelham Ave., Toronto 9, Ont. Also, Lindberg plants in Argentina, Australia, England, France, Italy, Japan, South Africa, Spain, Switzerland and West Germany.

LINDBERG heat for industry



In today's hustling, bustling construction business there's no time to stand on ceremony ... no point in risking costly equipment failure.

To short-circuit mechanical downtime, leading construction equipment producers specify Ohio Tubing for power cylinders and fluid lines, mechanical and structural members. This gives equipment the heft and brawn to shrug off brutal, grinding punishment . . . gives equipment users a high degree of protection against disastrous delays.

You can strengthen your product - and its mechanical reputation - by specifying Ohio Custom Made Tubing. The name Ohio is the hallmark of the highest quality in tubing, both seamless and welded. And we're now able to deliver a broader range of welded tubing sizes, wall thicknesses and grades than ever before.

Let's not stand on ceremony. We want your tubing business - seamless to 7" OD, welded up to 71/2" OD. For a fast start, contact your nearest Ohio representative, or send part drawings to the plant at Shelby, Ohio-Birthplace of the Seamless Steel Tube Industry In America.



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Lodge & Shipley CVA POWERTURN and HI-TURN Lathes offer the Canadian user exceptional advantages in performance and price, combining these important factors: modern American design, British-built at British prices and serviced locally throughout the Dominion.

Even more basically, these lathes give accuracy and rugged strength combined with greater precision and operating convenience.

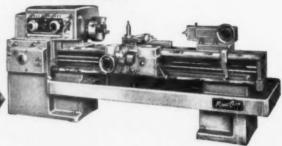
Select either fast, foolproof Speed Dial Headstock with but two dials for fast setting of speed change levers or POWERSHIFT PRESELECTOR Lathes with single dial preselection of cutting speeds and fast, automatic remote shifting.

POWERTURN Lathes are produced in 1610 (13" HD), 2013 (16" HD) and 2013-17 (20" STD) sizes in engine, toolmaker, gap, 45° and 90° tracer controlled types.

POWERTURN Lathes are also available in 2516 (20" HD), 2516-27 (20" 30" Raised), 3220 (25" HD) and 3220-32 (25"/35" Raised)

Ladge & Shipley offers a choice of tracer controlled lathes. . . . with 45° or 90° tracing slide on all POWERTURN models. Ladge & Shipley POWERTURN Hollow Spindle Lathes are widely used for machining long workpieces which are chucked through the hollow spindle. Available with 8½° or 11½° holes in spindle in 2516 (25° STD) and 2516-27 (20°/30° Raised) Lathes.

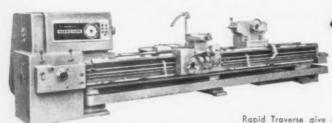
Powerturn



LODGE & SHIPLEY SUPERTURN

2516 (28") and 2516-21 (321/2") LATHE

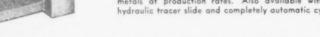
This lathe is extra big, extra powerful . . . designed for future turning needs with speeds from 8 to 1528 rpm, capacity to 60 hp. Powershift Preselect and 4-Way Power Rapid Traverse give ease and speed of handling equal to much smaller lathes.



LODGE & SHIPLEY 1307 Hi-Turn (10") Lathe

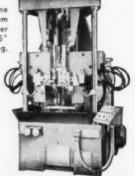
The Lodge & Shipley 1307 HI-TURN (10") Lathe is completely new in size, design, utility and even in its low price. It provides high speed turning, boring and facing capacity where the use of a leadscrew is of no consequence.

The HI-TURN Lathe is extremely rugged and has nine geared speeds with a high spindle speed of 3000 rpm and 5 hp, giving the ability to handle newer, tougher metals at production rates. Also available with 45° hydraulic tracer slide and completely automatic cycling.



FLOTURN, originated by Lodge & Shipley, is a completely new precision metal forming production process without dies. Simple blanks are axially rolled into complex forms, saving time, material and tooling cost while adding to part strength and hardness. No. 12 Vertical FLOTURN allows completely automatic production; may be used with other metal forming processes for maximum speed and economy. Also available: No. 12 Horizontal, No. 24, No. 40 and No. 60 Horizontal models and custom-built larger machines for parts to 80" in diameter. Sub-contract service also available.

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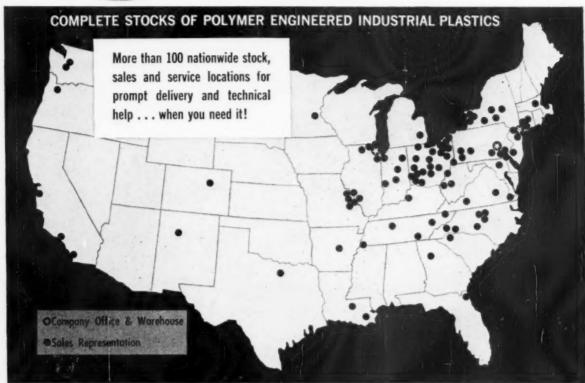
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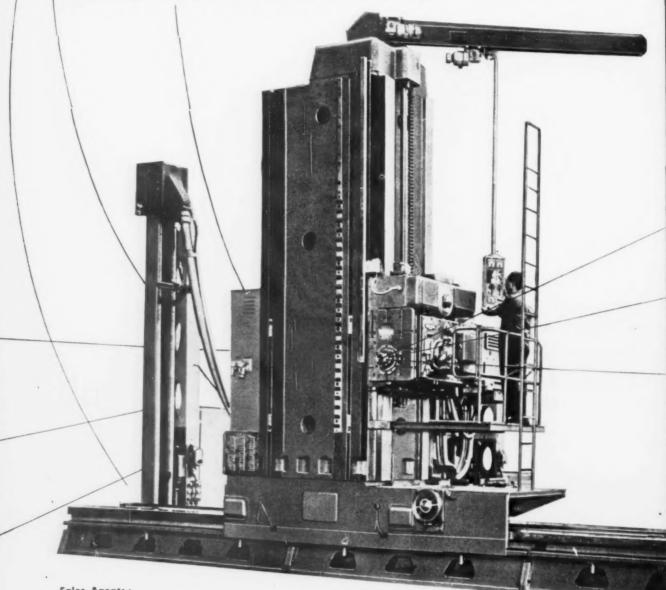
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and combined machines

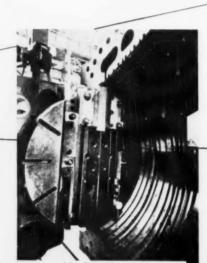
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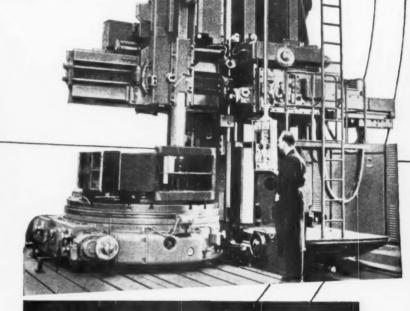


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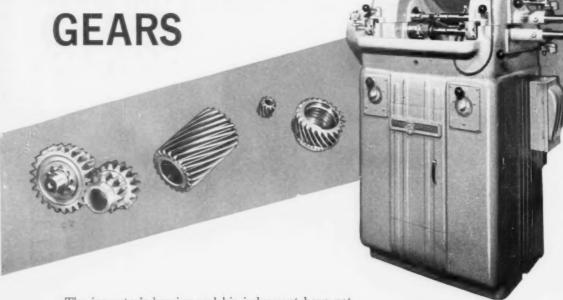
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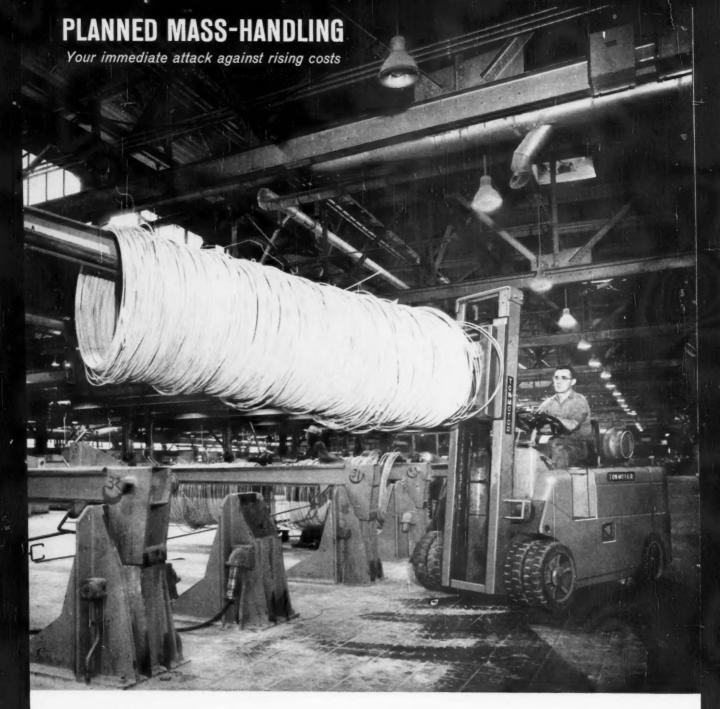


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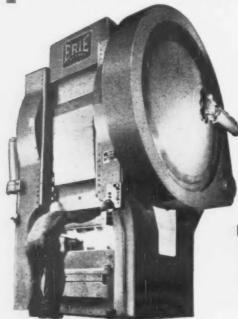


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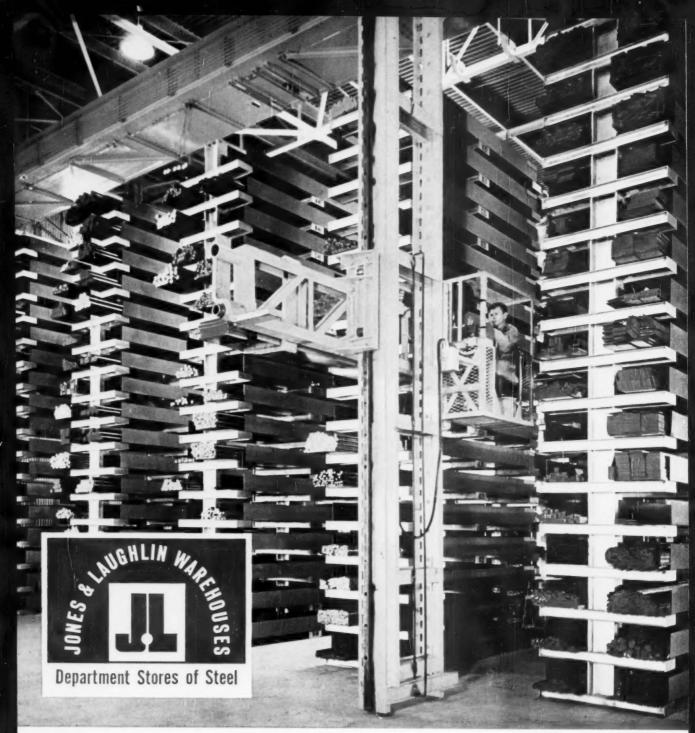


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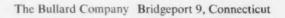
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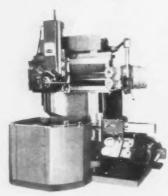
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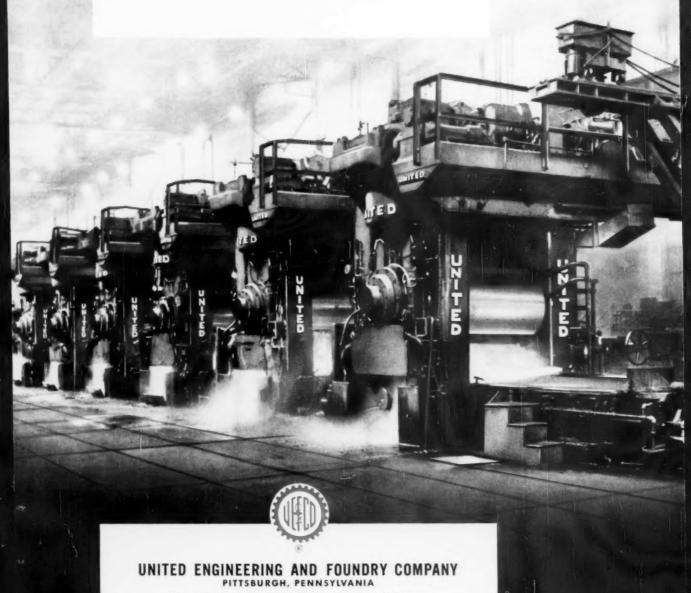


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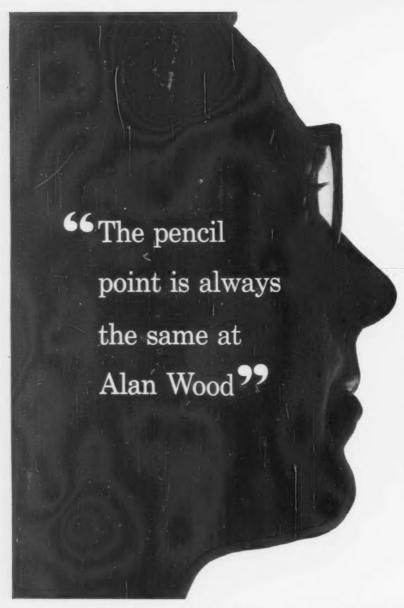
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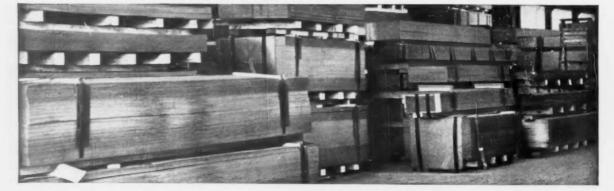


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QUALITY SHEET-METAL WELDING

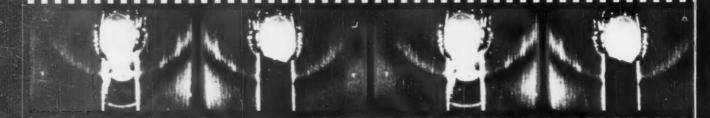
Sheet-metal welding has been possible, but quality welds were difficult and time-consuming. Now, LINDE's new Short Arc process—combining specialized power source characteristics, shielding gas, and semi-automatic torches—easily delivers quality and economy

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- ... producing 30 ft. of fillet welds for only a pound of wire and four cubic feet of gas
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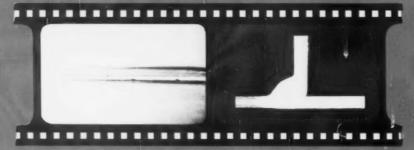
- ... as easy to control as a ball point pen
 ... permitting all-position welding with the same settings
 ... and consistently cleaner, smoother, more-uniform welds than any other process.

See the next page for details.

SHORT ARC



Here is a typical LINDE Short Arc weld in the making...



a finished bead, and a weld cross-section...

Notice the intermittent "shorting," the smooth, finished bead, the uniform penetration. No spatter. No clean-up. No finishing. Welders trained in minutes. Short Arc employs precisely controlled, low-voltage pinpoint-arcs shielded by an argon-CO₂ gas mixture. Shorting the arc lets the puddle cool, minimizing heat distortion and controlling burn-through for ideal penetration. Short Arc works on all common metals and their alloys, on carbon steel, stainless, aluminum and magnesium...on all types of joints...in all positions.

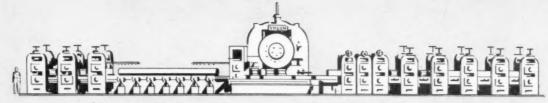
Only LINDE has brought together the ideal combination of materials for welding sheet metal—the SVI-300 power supply, with variable slope, voltage and inductance controls that permit an infinite range of settings; the C-25 argan-CO₂ gas mixture that combines with variable slope to reduce heat and control penetration; and the ST-2 and ST-4 torches, specially designed for hard and soft wires respectively. There is no substitute for Short Arc. Only LINDE offers the specialized equipment that makes such quality sheet-metal welding possible. For more information or a live demonstration, call your nearest LINDE office.

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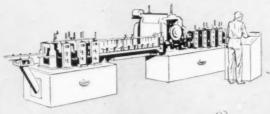
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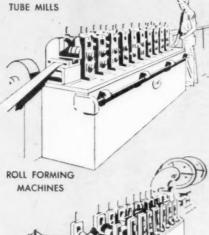
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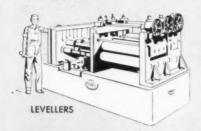


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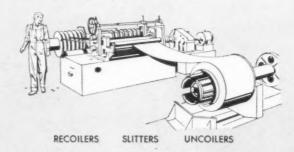
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- A MAJOR PRESS BUILDER IS SET TO ANNOUNCE the acquisition of a West

 Coast producer of high-energy forming equipment. The company
 makes close-tolerance "forgings" using expanded gas to
 achieve extremely high ram pressures. Although the acquisition hasn't been officially announced, the press builder has
 already received inquiries from abroad.
- THE INFLATION BUG STILL BITES. This time the bite is felt in the costof-living area. Consumer prices for November rose 0.1 pct to
 a record 127.4 pct of 1947-49 averages. And Ewan Clague,
 Commissioner of Labor Statistics, predicts a continued rise
 of 1 to 2 pct in 1961.
- ADJUSTING TO CHANGED MARKETS is the big problem facing management in the new year, says W. Cordes Snyder, Jr., chairman and president, Blaw-Knox Co. He claims this problem is of greater management concern than the probable level of the year's business. "In the period ahead," he says, "profits will accrue to the company that best serves its markets, not exploits them."
- THE COMEBACK FOR THE MACHINE TOOL INDUSTRY may begin in 1961, says the Value Line Survey. Four reasons are cited: A general business upturn after mid-1961; the auto industry will step up its buying once its labor contract is signed; liberalized write-offs appear on the political horizon; subsidiary plants abroad will protect world-wide competitive position of U.S. tools.
- PRICES AND INVENTORIES CONTINUE DIP in December, according to year-end survey of the National Assn. of Purchasing Agents. Some 14 pct of survey committee members report lower prices; 80 pct say "no change," and 6 pct tell of slight increases. Almost 90 pct say they are still holding the line or cutting inventories.
- THE FOREIGN MARKET FOR MAJOR APPLIANCES is a big one. And the Commerce Dept. has published a guide--Major Household Appliances in Selected Foreign Countries--to help U.S. appliance makers sell in 30 countries. Field offices of the Dept. of Commerce have copies.
- ECONOMY MOVES BY INDUSTRY, in face of intense profit squeeze, are causing a shift in marketing gears. One survey shows almost 70 pct of companies involved in formal cost-cutting programs. Says one big buyer; "High value, not low price, is the sales clincher."

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During a lifetime of trouble-free service, these versatile space-saving Cleveland's will transmit power uniformly, smoothly, dependably-under even the most severe operating conditions. Clevelands actually improve through use. Thousands of units have outlasted their driven machines.

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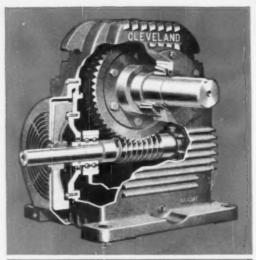
Write today for your personal copies of the up-to-date illustrated Bulletins shown at right. They describe the finest, newly-designed line of higher-horsepower worm and gear speed reducers—available anywhere in the world.

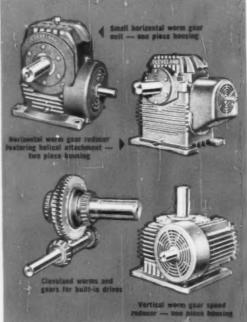
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Eaton Manufacturing Company 3282 East 80th Street . Cleveland 4, Ohio



CLEVELAND Speed Reducers







Recession That Wasn't There Should Fade in Early Fall

There are a lot of "if's" in the outlook for 1961. But production rates should be on the way up by early autumn.

The steel industry, the first to feel the recession, should make its turnaround earlier.

By Tom Campbell

There is one ominous note about the economic outlook for 1961. It has nothing to do with business. It is the scary fact that almost all economists, business soothsayers, and assorted guesstimators pick mid-1961 as the "end" of the recession. The record shows popularly-held ideas are subject to serious question.

A side effect in the same batch of opinions is a further confusing

fact that most of these fellows—only a few months ago—denied there was a recession. Now they concede there is one.

Form Sheet—A good way to put the general economic outlook this year is in terms a race track tout would understand—like bookie or parimutuel odds. That at least will give you a chance to go to work.

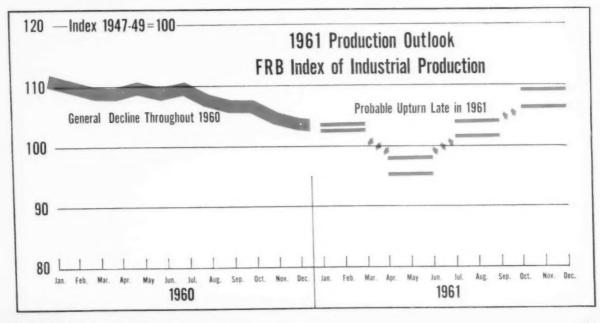
The recession we are now in started about last May or June. It should be at the end of its downturn by the middle of this year. There are a lot of "if's." But the odds are about 6 out of 10 that the Federal Reserve Board index of production will start to turn upward by next August; and probably dramatically by the week after

Labor Day. (Chart, here, shows the optimist's viewpoint.)

Steel's Part—The steel industry should see its turnaround date some time in March or April. It has been in the dumps much longer than has the general economy. The severe experience of the steel industry has caused some people to question the strength of this basic industry. We dissent. There is nothing basically wrong with steel that an end to the current cycle will not cure.

Black news in business will darken the first quarter of this year. Steel will not rise to expectations of those who look for a quick about-face. Also the durable goods industries will reflect additional "bad" statistics that will get a big

Will Second Half Bring the Recovery?



The Winter Book on 1961

The outlook for 1961 is cloudy at best. Probably at no time in recent years has it been more difficult to predict the business future.

In this preview of the

new year, and a little beyond in some areas, IRON AGE editor-in-chief Tom Campbell quotes these odds on some of the major business questions:

- 6 to 4 The Index of Industrial Production will turn upward by next August.
- 7 to 3 No depression this year.
- 6 to 4 Anti-recession measures will be invoked soon.
- 6 to 4

 There will be a steel strike in 1962, preceded by heavy advance buying of steel.

play in the news. But this article discounts such poor news and looks ahead to the general pickup in the heavy and not-so-heavy industries later this year.

Rough Early Going—The drop in the gross national product and in total income will probably be as severe as it is going to be in the first and second quarters. Both items will rise in the latter part of 1961. And of course this strength will operate in 1962.

The really serious factor in the current picture is the possibility of a depression. The ingredients are there. The government debt is overextended. A whopping deficit is coming in the next fiscal year. There is a devil-may-care attitude on the part of millions, a flock of IOU's in the social security kitty, and a new Administration which may be forced into new New Deals. Also, there is an apparent long-term change—downward—in the direction of prices.

Depression Odds—Still, while it may be wishful thinking, the odds are no more than 3 out of 10 for

a severe depression. So-called tools which government could use—tax cuts, spending spree, devaluation, plus a high-level fiscal manipulating—would be brought into play if signs of a depression become clear.

Statistical Figures—The drop in consumer spending and the falloff in the gross national product will not be sensational. But a big national deficit of \$10 billion to \$15 billion by June 30, 1962, will be quite serious. The chances are about 6 to 4 that Mr. Kennedy will be forced, by pressure of his party and his advisors, to indulge in anti-recession measures soon.

The question of new plant and equipment spending is a little clouded by the difference between interviews and projected governmental figures.

It will probably turn out that new plant and equipment spending—when all the figures are in—will be off by about 10 pct in 1961. Close to \$33 billion will be spent.

Building Prospects—The outlook for construction this year is encouraging. Private non-residential building has held up; it made records last year. It will keep going at a good clip this year. Road building and government projects will be numerous enough to help swell total construction.

The big question on housing starts: "When will the upturn begin?" Most economists had looked for a spring revival. But there have been some changes in thinking in the past few months. Generally, the increase in vacancies of existing homes, the trouble in disposing of older homes, and high interest rates have all combined to create a more cautious outlook for the upswing.

Homes vs. New Cars—Pcople often make a swing from cars to homes and from homes to cars. It may be that homes will get their inning this year. Cars had it last year. The price of new homes may be kept in the range of potential buyers. So, if the market for older homes picks up, if money becomes easier, and if interest rates go lower, the march upward in starts will begin this spring. The odds favor an upward movement in the home building cycle this year—probably before summer.

The increase in housing starts will bring along an increase in car sales, an improvement in new commercial building, and the spark needed for the deflated appliance market.

One consoling thought: Right when the bitter and sour business news hits the papers this month, and next, basic forces needed to start a recovery are already at work—and have been for some months.

There remains on the horizon the sign that another 1962 steel strike is by no means out of the picture. The odds are at least 6 to 4 that there will be one—preceded by heavy steel buying and followed by heavy buying if the strike were to last a long time.

1961 will be weak at first, with the last four or five months reflecting the strength that this country always seems to have when some have given up.

Kennedy Faces a Hornets' Nest

The U.S. Business Slump Will Offer First Challenge

President-Elect John F. Kennedy will have many problems when he moves into the White House.

The current slump in U.S. business and problems of international affairs will be primary headaches for Mr. Kennedy. By R. W. Crosby

■ In two weeks, John F. Kennedy will walk into the White House as President of the United States. He will walk right into a hornets' nest.

A cartoonist might portray the beginning of the new President's term with a smiling Jack Kennedy surrounded by a host of angry bees, their stingers aimed in his direction.

The queen bee could be labeled "recession." Bees around her would be tabbed "unemployment, the dollar, the budget, inflation, civil rights, the farm problem." Also among the bees would be one with a fat. round face, labeled "Khrushchev," and a bearded one labeled "Castro."

The Swatters—The artist might add one more thing to his cartoon. In each hand Jack Kennedy would hold a fly swatter. These would be labeled "Cabinet" and "Congress."

The cartoon would be titled: "President of the U.S.A. Jan 20, 1961." It would be an accurate picture of the new President's situation.

The new President enters office beset with critical domestic problems, the most immediate of which is the business slump. International problems, particularly from the Communist camp, are also critical.

Mr. Kennedy is confident he can meet the challenge the problems present. His weapons to fight the problems are his confidence, his Cabinet and the Congress. Round I — The first challenge boils down to a fight against a continuing slump in U. S. business, with unemployment over the 5 million mark. Compounding the problem is the action which must be taken to solve it. Budgetary action is needed and it could mean deficit spending.

The new President will spend more on such things as defense and Federal aid for construction and depressed areas. His campaign pledges and actions to revitalize business will be pushed from the beginning. Here, he must rely on Congress.

A Democratic Congress with liberal tendencies will back him on much of his program. But a lot depends on how far Mr. Kennedy goes. If he keeps such things as civil rights and Federal aid to teachers out of the program for a while, he may get the backing he needs.

The President-elect, liberal as he may be, realizes now that he must not go off the deep end in dealing

with Congress. His program will be quickly and decisively pushed but it won't be radical at the beginning.

Facing a Dilemma—How he will fare on the international problem, made particularly severe by the outflow of U. S. gold to foreign countries, depends more on his personal administrative actions than on Congress. He faces a dilemma. The American dollar is in trouble. And the spending Mr. Kennedy plans to stimulate the economy won't make the dollar any stronger.

The new President will take hold of the government reins himself. His personal hand will be seen in every major move. This approach will get its big test from the Communists. Khrushchev and company will try to make it tough for Mr. Kennedy

Rely on Others—In the international field, as well as the domestic field, the new President will guide the major moves, but he will rely on the men around him to carry out his plans successfully.



READY AND WAITING: In two weeks John F. Kennedy and Lyndon B. Johnson will take over direction of the government and its problems.

Steel Puts Reins on Spending; Sales, Cash Flow Slide

Capital outlay plans for 1961 show a downward trend. Improved quality and efficiency rather than expansion is aim.

Investment in foreign facilities is due for increase. By G. J. McManus

 Steel spending is due to dip in 1961.

A brightening in market prospects could change things in a hurry. The mills have big programs being held up because of the sales slump. They are acutely aware of the need to modernize.

The Outlook—But at the moment, the outlook is something like this:

- Capital outlays will drop under the \$1 billion-plus estimated for 1960.
- Spending will aim at quality, uniformity and efficiency rather than expansion.
- 3. Mills will concentrate on facilities used when operations drop under 70 pct of capacity.
- 4. Increased investment in foreign facilities is likely.

The mills started 1960 with plans to spend \$1.6 billion for replacement and modernization. By October, the figure had been shaded to \$1 billion. Actual outlays will probably run somewhere between the two estimates.

Downward Trend—There are no official tabulations yet for 1961 but a spot check of individual mills shows a downward trend. At the start of 1960, United States Steel Corp. had \$695 million authorized for capital spending. Latest figure released by U. S. Steel was \$588 million.

Jones & Laughlin Steel Corp. spent \$80 million in 1960. It expects to spend \$60 million in 1961. Allegheny Ludlum Steel Corp. is cutting back from \$20 million in 1960 to \$6 million this year. Republic Steel Corp. is holding the 1960 level of \$120 million. Armoo Steel Corp. plans a boost from \$60 million in 1960 to \$100 million this year. However, the general outlook is for spending slashes.

Forcing cutbacks is the slide in sales and cash flow. From 1946 through 1959, the steel industry spent \$12.3 billion for replacement and modernization. Of this amount, \$7 billion came from depreciation and amortization. Peak for these items was \$766 million in 1957.

Depreciation Down — With fast tax write-offs now going or gone, depreciation (3rd quarter) is running at the rate of \$660 million a year. This is down by about \$100 million from 1957, although the steel industry's investment has grown by \$2 billion in the past three years.

Earnings show similar shrinkage. Steelmakers plowed \$5 billion back into the business over the 1946-59 period. In the third quarter of this year, they earned only \$132 million and had to take \$27 million out of the business.

The industry earned over \$1.1 billion in 1957. In the third quarter, before the recent wage increase, earnings were at an annual rate of \$530 million.

In the matter of borrowing power, there is sharp variation from company to company. The industry as a whole owes more than \$2 billion in long term obligations. Taking 10 of the biggest producers, two have debts that are more than 30 pct of total capitalization. Five are over 20 pct. U. S. Steel, with 12.5 pct and Bethlehem Steel, with 8.3 pct, are among those in a strong borrowing position.

Sales and Cash Flow Rule—For most of the mills, spending will

have to be geared to sales and cash flow. Allegheny Ludlum is in the middle of a \$40 million program. The mill has projects it wants to start. But until sales and earning improve, 1961 spending will be held to the \$6 million generated by depreciation.

The sales outlook will also determine the nature of capital programs. The steel industry has averaged around 65 pct of capacity over the past three years. The mills hope to hit about 70 pct in 1961. For some products, producers feel they have ample capacity for the next five years.

Wit¹ this prospect, no one is in a mood to spend for expansion. The need for modernization and replacement is recognized. However, it is not always easy to modernize without expanding. One producer recently rebuilt a hot strip mill. Cost was up near \$50 million.

The project boosted hot mill capacity from about 130,000 tons to over 200,000 tons. With today's market conditions, the mill is producing only 100,000 tons.

Volume Needed—This is one of the problems for steel. You frequently cannot modernize in small increments. And it is difficult to pay off massive investments unless there is the increased volume.

Several solutions to this difficulty are being tried. The National Supply division of Armco Steel Corp. faced a need to modernize its continuousweld mill near Pittsburgh. Although the present mill dates back only about 10 years, it is slow by current standards.

Modern pipe mills go up close to 2000 fpm; National Supply's unit operates at 500 fpm. This speed gap made modernization necessary.

As a way out, National Supply is going to a combination con-

tinuousweld and electricweld mill. Stretch-reducing equipment of the new facility will also be used for seamless pipe. By building a flexible unit, National Supply figures it can get high speed efficiency and still not have expensive equipment sitting idle.

Partial Modernization—Another approach to the same difficulty employs an intermediate, or partial, type of modernization. Klockner in Bremen, Germany, is installing a new hot strip. The mill will be entirely modern but instead of a continuous roughing train, will have a reversing rougher. Space is being provided for the addition of individual roughing stands when demand warrants.

Cost pressure will probably be the biggest factor in 1961 capital pressure. Close behind will be market pressure for better quality and new products. At least seven bright annealing lines will be installed by stainless strip producers in 1961.

These will cost over \$1 million each. There is no assurance the new lines will reduce production costs; many feel they will increase costs; and no premium is being charged for bright annealing.

However, auto producers want bright annealed quality. This customer preference brought action by almost the entire stainless industry in a matter of months.

Quality Sells—In a less striking manner, the same kind of improvement is being made throughout the steel industry. Elaborate and expensive gage controls are being applied to hot strip mills. In most cases the mills can produce within commercial tolerances without added control. But the big steel users are rating suppliers on product performance with minute care.

Thin tinplate reflects market pressure of a different kind. This new product could put tin mills in better position to beat back aluminum competition in the can market. With many questions unanswered, the mills have been moving cautiously in the matter of new facilities for thin material.

But the program could start moving with a rush. Six-stand tandem cold mills are being installed by U. S. Steel and by Youngstown Sheet & Tube Co. Granite City Steel Co. is putting in a big, high-speed Sendzimir mill. If one producer comes up with a mass production operation for thin tinplate, others will have to follow.

In the matter of basic steelmaking facilities, the emphasis is on improving existing units — particularly the low cost equipment that is used when operations go below 70 pct. The current program for tonnage oxygen includes 18 major plants for steel.

Oxygen Plants—In part these are related to basic oxygen steelmaking. National Steel Corp. and J&L are going ahead with big new installations. However, one big basic oxygen plant has been shelved and final commitments are being delayed by many others.

On the other hand there is no holdup on the tonnage oxygen program. There is still debate as to the economics of openhearth oxygen; one mill says it is just breaking even in its roof lance systems. However, the same mill says oxygen has lowered costs by making it possible to get more steel out of low-cost openhearths.

Increased foreign investment by American mills seems certain for 1961. The only question is what form this will take. Specialty steel operations for Europe have been announced by Allegheny Ludlum Steel Corp. and Crucible Steel Co. of America. Crucible is opening a warehouse in Australia. India is considered a good bet for American electric furnace operations.

Sources of Steel's Capital Dollars

Quarterly Totals in Millions of Dollars

	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd
_	1957	1958	1958	1958	1958	1959	1959	1959	1959	1960	1960	1960
Sales	4584	3800	3979	3961	4470	5236	6791	2875	4228	5702	4916	4122
Net Profit After taxes	267	159	198	199	321	374	552	_ 89	204	400	263	132
Net Profit Retained in Business	95	11	52	51	160	219	397	—248	35	235	103	_ 27
Depreciation (Fast tax)	66	42	44	38	38							
Depreciation (Normal)	143	148	153	164	171							
	_	_	_	_	_							
Total Depreciation	209	190	197	202	209	205	240	155	199	229	216	189

Source: FTC Quarterly Reports of Primary Iron & Steel

R&D Outlays Hit New Peak

More Than \$13 Billion Will Be Spent on R&D in 1961

R&D bucks trend of tightened purse strings as industry scrambles to put new products on the market.

The interval between a research idea and a paying product is now 5 years.

By K. W. Bennett

■ Despite a poor business climate, research and development outlays by business were the highest percentage ground-gainer in 1960. And, they'll increase again in 1961.

The U. S. R&D outlays hit \$12 billion in 1960—exactly what forecasters had predicted. These same forecasters look for expenditures of \$13 billion in 1961.

There was an apparent slowdown in R&D spending during the second half of 1960. One major research facility reports that backlogs were down 25 pct. Probably responsible for this cutback was reduced government spending following earlier record outlays.

The Big Sources — Of 1960's total expenditures for R&D, about \$2 billion came from industry. The Dept. of Defense, Atomic Energy Commission and National Aeronautics and Space Administration put \$10 billion into Federal research contracts.

Now, with a new Administration taking hold, there appears a trend of upward spending for research. Whereas the Dept. of Defense was allotted \$4.45 billion in 1960, it will have \$4.99 billion this year for R&D.

Prediction—Some research men are looking for a 10 pct increase in 1961. Dr. Richard Humphries, vice president for technical devel-

opments, Armour Research Foundation, for example, reports that the foundation is budgeting for a 10 pct gain in 1961. He expects record levels in the industrial research area.

Dr. Alan Waterman, Director of National Science Foundation told The IRON AGE: "Our studies indicate that funds for research and development in the economy as a whole will total more than \$13 billion in 1960-61. The industry sector of the economy is expected to spend more than \$10 billion of this total, and the federal government will be the source of more than half of this amount. The estimated total represents an increase of about \$1 billion over the 1959-60 period."

Fast Pay-Off—Industry has been pushing for a faster payoff for R&D efforts. A number of observers claim that the interval between a bright new product idea and an item for sale is five years. Just last year, most claimed a seven-year interval.

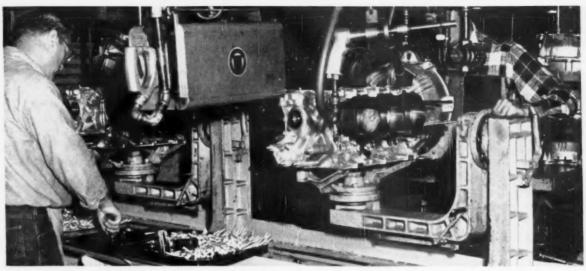
Credit for this stepped-up pace is generally given to the fact that more money is spent on R&D. Also, industry is doing a better job of liaison between research engineers, production and sales people. Too, computers have facilitated swifter flow of ideas into products.

Materials — What's being researched? A top research man comments, "The emphasis is still on materials. Chemistry, physics, electronics and metallurgy are the areas of greatest attention."

Plastics are under development for electronic control systems that operate in a 1000°F environment. New chemicals permit water to remain liquid at —60°F. Steel tanks that will withstand drop hammer tests when filled with liquid hydrogen (—300°F) are an accomplished fact.



THE SEARCH: Miniaturization has given way to research into microminiaturization of components for missile projects at Motorola, Inc.



ALUMINUM BUILD-UP: Aluminum engines assembled for Chevrolet's Corvair signify the build-up of new

and expanding markets for aluminum. Gains have also been made in metal can and other new markets.

New Markets Help Aluminum

Penetration into new market areas was the big accomplishment of the aluminum industry in 1960.

Profit outlook for this year is clouded, with most forecasts hinging on general business. By F. J. Starin

■ It takes more than one disappointing year to cancel the aluminum industry's traditional optimism. But 1960 has tempered appraisal of the future.

Overall, top aluminum executives now tie the fortunes of their industry in 1961 closely with the general business economy.

Spokesmen Report—"Any significant upturn in business activity, particularly in the durable goods sector, should be accompanied by a sharp rise in the aluminum industry," says Richard S. Reynolds, Jr., president, Reynolds Metals Co.

D. A. Rhoades, president of Kaiser Aluminum & Chemical Co. agrees. "The outlook for aluminum in 1961 must be said to depend upon the outlook for American business in general," he says.

Within the industry however, there are some differing viewpoints, along departmental lines. Marketing people, in general, show professional optimism about 1961. Financial people are somewhat concerned, as usual. Operating people are somewhere in between.

Market Gains—In terms of market penetration, 1960 was a good year for aluminum. Automotive use, keynoted by six aluminum engines, increased. Canmakers leaned more toward aluminum, lead by citrus concentrators. Reynolds predicts that in the coming canning season, virtually all frozen citrus concentrates will be packaged in aluminum cans.

Despite the drop in housing starts, sales of aluminum siding actually improved last year.

Mr. Reynolds looks for "increased use of aluminum by the railway industry." Lawrence Litchfield, president of Aluminum Co. of America points out that "electrical industry consumption of aluminum in transmission towers alone has jumped 300 pct since 1958." And he expects this to continue.

And all producers, including Aluminium Ltd., Canadian producer, are looking for oil, gas and water pipe sales to zoom in 1961.

Profits Dip—But the plain fact is that profit margins are failing to keep pace with the fast-growing markets.

Alcoa president Litchfield blames prevailing low prices. Mr. Reynolds points the finger at "general business conditions" and higher labor costs.

Kaiser president Rhoades says, "The aluminum industry's own market development efforts have also affected the current earnings picture. Prices for certain mill products designed for the mass production industries are necessarily established at levels which will make these products generally competitive with other available materials."

Perhaps more important, Mr. Rhoades believes these factors that are squeezing profits are temporary. He believes that "satisfactory volume" in these key products will boost profits to "adequate."

Farm Equipment Sales May Rise

Producers Say Inventories Are Down, Farmer Profit Up

Manufacturers of farm equipment are generally optimistic about the sales prospects for 1961.

They say lower inventories and higher farm incomes should spell a better year than 1960. By K. W. Bennett

• The first gains in the 1961 farm equipment outlook are trickling in. Recently, a major producer doubled his tractor schedules. Forecasts of improved business are snowballing. Now, a producer will begin buying raw materials against a 15 pct advance in production schedules.

For the record: J. I. Case Co. president W. J. Grede comments. "We see an increase in 1961 sales. We have some new products. Farm income is expected to hold at '60 levels. Dealer inventories are down. It adds up to increased manufac-

turer sales."

In quick succession: President W. A. Hewitt, Deere & Co., indicated that 1961 will see a 5 to 6 pct advance in farm equipment sales for the industry, and seems to feel that his company will even better this figure.

More Domestic Sales — Minneapolis-Moline Co is shooting for a 10 to 12 pct increase in domestic sales; an even stronger gain in export sales—and will do a bigger contract manufacturing business this year.

Oliver Corp. president S. W. White Jr. is expecting a 5 to 10 pct retail sales gain. Both International Harvester Co. and Allis-Chalmers Manufacturing Co. have said they'll see more business in 1961.

The \$1.5 billion farm equipment industry is traditionally conservative in its forecasts. Only 30 days ago, its predictions ranged from

a top gain for 1961 of only 5 pct to as much as 10 pct under. One observer still expects a 1961 sales decline of 15 pct. But this year, farm equipment is one of the first industry groups to go on record as seeing a stronger year ahead.

The Reasons—Why the sudden change? The industry had a poor 1960, and certainly isn't pushing its own vendors for any rush of raw materials or components. Some of the reasons for the advancing forecasts:

Farm equipment makers are moving into 1961 with an enviable inventory position. Manufacturers' shipments of wheeled tractors dropped from 229,700 units in 1959 to 200,000 units in 1960. Farmers' purchases didn't drop that much. Dealer inventories of tractors scaled down by 20 pct.

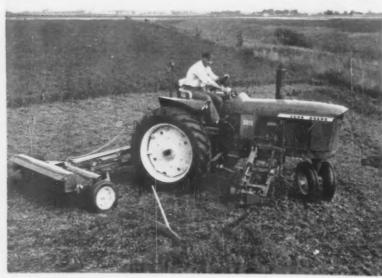
Merritt D. Hill, vice president and general manager of Ford Motor Co.'s Tractor and Implement Div., comments that "excessive inventories appear to have been worked off, and production in line with sales can be resumed."

But he adds that 1961 "will be intensely competitive in the areas of price, quality and service."

Combines, another important dollar item, are in worse inventory shape. But this is a fall sales item, and there's still time for correction.

High Farm Income—At the same time, farm income moved to \$38.1 billion in 1960. That's a shade short of the record \$38.2 billion of 1958 and well over what had been expected. A number of crops requiring considerable tillage equipment actually hit record levels this year. Dept. of Agriculture forecasts call for at least an equal gross farm income in 1961.

Equipment makers believe a farmer buys on his gross income.



SALES WILL CLIMB: Producers of farm machinery and equipment look for additional sales in 1961. The industry says low inventories and more farm profits will mean a greater demand for tractors such as this one manufactured by John Deere Corp.

If he didn't buy in 1960, he put money away. The theory has proven out in at least one recent recession.

At the same time, builders will hit the market with a flood of new designs, new models, and new products. Allis-Chalmers is expanding into lighter tracklaying tractors. John Deere is already hitting the market with a completely new tractor line; has beefed its combines so one of them is the biggest built.

Cleaned Inventories—Finally, to improve its cash position, the farm equipment industry cleaned its own inventories thoroughly this year. One company already reports holes in raw materials inventories over the past 30 days, yet will not boost raw material inventories above three-quarters of normal. Another, with rising product schedules, is in an inventory reduction program that will continue through the first quarter.

A third comments, "With the tractor inventory we've got out at the dealerships, if we get any more sales increases, we'll be scrabbling to fill orders."

New models, plus the 1960 inventory reduction of finished goods, have at least four important manufacturers filling pipelines and have already put one 7 pct ahead of last year's factory shipments.

No Bonanza—The farm equipment gain doesn't necessarily spell a bonanza for suppliers. A 5 pct rise in 1961 tractor sales, or 210,-000 units, still leaves the industry under 1959 buying levels. A close-fisted buying policy means the industry will buy only for immediate use, and is ready to cut off orders at the first sign of trouble.

While the industry expects to step up its purchasing levels in the first quarter it is doing so at a slow pace—far less than its own sales forecasts would indicate. Since it's already well into its winter manufacturing season, it is buying against a production season that begins to fade in late February. The next seasonal buying wave isn't due until May and June, when production of fall implements begins.

Can Automakers Hold Sales Gains of '60?

The auto industry had a good year in 1960. It is hopeful that 1961 will be almost as good.

But there are several negative factors: High inventories, high unemployment, unsettled business conditions, and contracts expire.

By A. E. Fleming

• There's seldom been more difference of opinion over an automotive year than there is for the coming one. Pessimism and cautious optimism are intermixed. But conservatives seem to be in the majority.

About the most being said by experts in the industry is that 1961 will be about the same kind of a year as 1960. Others foresee a drop of several hundred thousand cars in sales and production.

Exports Increased — There's no doubt 1960 was a good year. American automakers totaled 6,740,000 factory sales and 1,210,000 trucks compared to 5,591,000 and 1,137,000 in 1959. Cars showed a combined wholesale value of \$12 billion, trucks \$2.5 billion against \$10.5 billion and \$2.3 billion in 1959.

Reversing a trend, exports of U, S, cars jumped to 145,000 from 116,500 and trucks moved up to 215,000 from 195,000, a total gain of nearly 50,000 over 1959.

Auto Indicators—Other rule-of thumb indicators show further proof of 1960's excellence: Gasoline consumption jumped from 56.3 to 58 billion gallons; vehicle miles of travel climbed from 698 to 720 billion; car owning families moved up to 39.5 million from 38.2 million; registrations at the end of the year numbered 61.5 million cars and 12

million trucks, up from 59.5 million cars and 11.7 million trucks.

Big Three auto company presidents predict new car sales in 1961 will be about the same as 1960. L. L. Colbert of Chrysler Corp. forecasts 6.5 million sales in the next 12 months; Henry Ford II of Ford Motor Co. tabs them at 6.6 million; F. G. Donner, who in November forecast sales of 7 million cars "if consumer incomes continue to rise and consumer confidence is sustained," tempered this forecast as the year ended by saying "1960 sales could be matched or even exceeded in 1961."

Less Optimistic—Sources outside the auto industry are less optimistic about 1961's possibilities. The University of Michigan, in its annual economic forecast, pegged 1961 auto sales at 6.2 million.

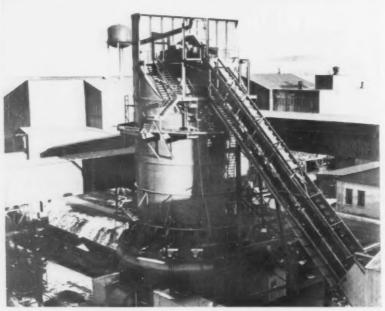
The Dept. of Commerce says sales will total about 6.5 million cars, including 400,000 imports. But predicts a drop in production to 5.8 million units in 1961.

Commerce bases its forecast on an expected low first half, an attempt to cut back high dealer inventories of over 1 million cars as the year starts, on unemployment, and unsettled business.

Hit or Miss?—In addition to lack of unanimity over 1961's sales and production prospects, opinions vary over the possibility of a strike. Big Three contracts with the UAW are up for renewal in the summer.

Union demands will be drawn up in April. Some believe the auto companies will take a firm stand, following the lead of General Electric Co. in 1960 negotiations with the IUE. Others disagree. In all probability the general economic picture in the first half of the year will determine the stand.

Tall Tower Cools Hot Sinter



NEW AND COOL: Some 3800 tons of sinter per day are cooled by blasts of air as the product works down through a vertical shaft of this new sinter cooler. Unlike conventional rotating coolers, this one is stationary. First of its type, it was built by Dravo Corp. for the New York Ore Div. of Jones & Laughlin Steel Corp., Star Lake, N. Y.

World Press Market Stays Strong

Story behind announcement by Clearing Div, U. S. Industries, Inc., of a \$435,000 press going to Japan: The press is first of a lot of four presses, aimed at the same customer there. The big U. S. press manufacturer builds presses in Australia, has a two year backlog in its plant there.

And despite the cries of alarm over the foreign auto industry sales drops. Clearing and other press builders confirm that the foreign order situation for presses is not only strong, but still rising. In Great Britain, Clearing is reported to have a two year backlog, and the backlog is still gaining. Italy is a "hot" market, in the words of one Clearing official.

A lesson too, in checking unlikely markets and hitting paydirt, is the fact that buyers from India are eager to get U. S. press equipment. They are getting funds through the Export-Import Bank and the Development Loan Fund. Clearing is building presses through Italian licensees, shipping them into South America, and finds this market strong. A new factor, the Latin American Bank, will be a further aid in this area.

Said Clearing President John R. Bartizal, "It's reasonable to say that 1961 will be our biggest sales year. We wish we could always have our business at the levels we have right now. Particularly, in the field of international operations."

Europe's Steelmakers Push Expansion Plans

West European steelmakers are pushing capital spending programs at record rates. New investment projects reported to the High Authority of the six-nation European Coal and Steel Community during the first half of 1960 indicated expenditures of nearly \$1.1 billion.

An example of why and where Europeans are spending their money: August Thyssen-Huette A. G., Duisburg-Hamborn, West Germany, has started a program to lift its annual crude steel capacity to 4.6 million short tons by 1963. ATH is already West Germany's leading steelmaker.

Projects planned or in progress: A ninth blast furnace; an L-D oxygen steel plant with two 165-toncapacity converters; a semi-continuous hot-strip mill; and new slab rolling facilities.

The West German steel industry alone spent about \$239 million in 1958. This fell to \$207 million in 1959, but shot up to \$270 million in 1960. Capital expenditures are expected to reach \$250 million or more this year, a level the industry plans to maintain for at least the next several years.

Canadian Tariffs May Hit U. S. Exports

A change in Canadian tariff laws could mean an increase in duties on some \$200 million worth of U. S. machinery exported to Canada. The ruling might also affect tariffs on autos, aircraft, and structural steel.

Under the new tariff ruling, about one-third of the \$600 million worth of U. S. machinery exported to Canada will be made vulnerable to a 22.5 pct tariff rate. Much of this machinery now carries only a 7.5 pct duty. Metalworking machinery accounts for about \$40 million of the total.

The 7.5 pct duty is set up for items not made in Canada. Imported items which are also made in Canada have the 22.5 pct rate.

Under the new ruling, the 22.5 pct rate will be applied to machinery which Canadian firms have the capacity to produce even if not now making them. The high rate will also be applied if Canadians produce machinery of approximately the same class.

Since Canadian tariff laws provide certain rates for specific types of machinery, such as agricultural and mining machinery, the new ruling will apply to machinery "not otherwise provided for" in tariff laws.



This customer, a fabricator of process equipment, knew it was wise to put the responsibility for filling this stainless steel order in the hands of a single producer—G.O.Carlson, Inc. He knew that our specialists, working with modern equipment, would make each item of the order "to specification." And he also knew that our delivery promise is a trust that we fulfill.

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INDUSTRIAL BRIEFS

Into Indian Country—A privately-financed helium extraction plant will be built in the U. S. to supply the commercial market in the Pinta Field, Apache County, Arizona. Air Products, Inc., of Allentown, Pa., is designing and engineering the plant for Kerr-McGee Oil Industries, Oklahoma City. Engineering work is now underway, and the plant will be completed within a year.

Moving Day—Temescal Metallurgical Corp. moved its offices and plant from Richmond, Calif., to a new location at 2850 Seventh St. in Berkeley. A new electron beam furnace is being built at the Berkeley site and is expected to be in operation by mid-March. When completed, it will stand about three stories high and will weigh about 25 tons.

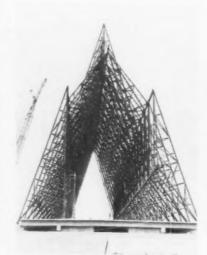
Foundryman's Envoy — A. J. Kiesler, a metallurgist at the General Electric Research Laboratory, has been chosen by the American Foundryman's Society to represent the U. S. at the 28th International Foundry Congress in Vienna. Metallurgists from about 28 nations will attend the Congress. It will be held from June 18-24. One paper will be presented by each nation.

Missile Millions—Hughes Aircraft Co, received a Navy contract for \$6.6 million for continued production of inertial guidance systems for the Polaris missile. The contract brings the total of Polaris work awarded Hughes to more than \$21 million. It will extend the current rate of production of Polaris guidance systems at Hughes El Segundo, Calif., plant through 1961.

Titanium Plans—A license to produce a new titanium-palladium alloy with improved corrosion resistance has been extended by Union Carbide Metals Co. Div. of Union Carbide Corp., to Titanium Metals Corp. of America. TMCA will alloy titanium with 0.15 pct palladium. Union Carbide developed the alloy in its Metals Research Laboratories.

Union Spring Reorganized—A group of Pittsburgh business men, headed by B. C. Sabel and Clarence Abitz, has purchased the controlling interest in Union Spring & Mfg. Co., New Kensington, Pa. The 58-year old manufacturer of railroad and industrial springs, steel castings and pressed steel products is planning modernization of plant and equipment, and increased efforts in industrial, railroad and space-age applications for their products.

Maintenance Organization — A new society has been formed known as the International Maintenance Institute. The non-profit organization is chartered under the laws of the state of Connecticut. Newly-elected first president of the Institute is G. J. Martin, authority on maintenance problems and solutions, writer, lecturer and consultant to U. S. industry and defense and other government departments.



PATTERNS FOR WORSHIP: This steelwork is for the new Cadet Chapel at the Air Force Academy, near Colorado Springs, Colo. Five slender lengths of U. S. Steel's "T-1" steel hold the steel patterns together.

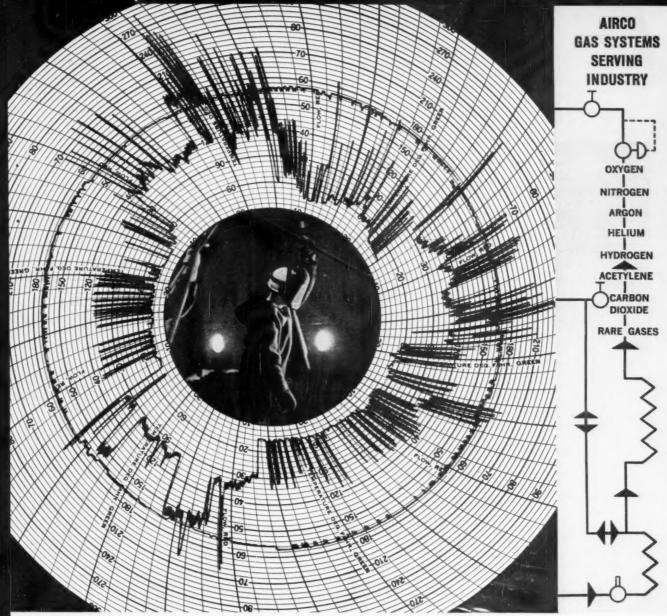
Three for One—A new electronics and applied science division has been formed by The Susquehanna Corp., Chicago. It will be known as Susquehanna Sciences, Inc., headquartered in Pasadena, Calif. It includes three companies acquired by Susquehanna during the past year: Computer Engineering Associates, of Pasadena, Birdsell Products, and Thor Electronics, Palo Alto, Calif.

Westinghouse's Weaver Honored—C. H. Weaver, vice president, atomic power, Westinghouse Electric Corp., has been elected president, Atomic Industrial Forum, Inc. The Forum is a non-profit association made up of business and professional organizations, labor groups, educational institutions, and governmental agencies active in furthering atomic energy development and commercial applications.

High Pressure Move — Convair Div., General Dynamics Corp., is moving its Dynapak facility from Pomona to San Diego. The facility manufactures high - energy rate metal forming machines and a line of advanced mechanical test equipment. The new address is 2930 W. Harbor Drive. The move is expected to be completed next month.

GE Computer Plans — General Electric Co. plans to establish a \$1.5 million Advanced Computer Development and Research Laboratory at Sunnyvale, Calif. Construction of the 49,000 sq ft lab is expected to start in the spring. Occupancy by GE lab personnel is scheduled for December, 1961. The lab will be located at the International Science Foundation in Sunnyvale.

Overseas Move — A whollyowned subsidiary has been formed in Cologne, Western Germany to stock and distribute plastics of The Polymer Corp., Reading, Pa. The new organization, Polypenco G.m.b.H., will supply the Western German market with nylon, Teflon and other semi-finished shapes of industrial plastics.



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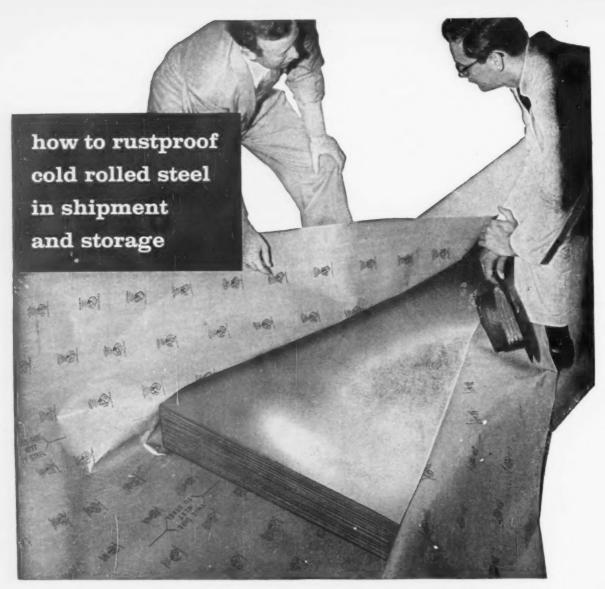
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yet highly flexible and easy to handle. The chemical rust inhibitor is compatible with oil and stays effective for long periods even when the humidity soars.

Whether you're a shipper or a buyer of steel, it will pay you to specify Ferro-Pak wrapping wherever rust is a problem. For an interesting idea brochure on many uses for Ferro-Pak, write Cromwell Paper Company, 180 N. Wabash Ave., Chicago 1, Ill. Dept. A12.



How to rustproof a freight car—Ferro-Pak is used to line sides of car and to interleave coils, transforming ordinary treight car into huge rustproof package.



New to sustanced black plate. On this light gauge, dry, uncoated steel, rust can start from a fingerprint. Ferro-Pak keeps black plate rust-free even when the humidity soars!



Will Credit Vary Much in '61?

Interest rates probably won't change drastically during the next twelve months.

Despite forces operating to ease credit, others will act to hold rates up.

■ Don't look for any great changes in interest rates in '61 unless there's a runaway boom or a prolonged recession. Since both these prospects are unlikely, credit conditions probably won't alter radically in the next twelve months.

Many forces are operating in favor of easier money. But there are equally powerful forces at work holding off any wide moves away from present lending rates.

Previous Pattern—What happens overseas in '61 will be as important as what happens in the U. S. in regulating credit terms. It's probably even more important.

A review of credit conditions during 1960 indicates why. When the year started, there was concern that tight money might stifle the boom. But business activity never lived up to early hopes. This brought demands for easier credit to stimulate business.

FRB Actions—The Federal Reserve Board acted by twice cutting the discount rate it charges FRB member banks. These moves dropped the rate from 4 pct to 3 pct by August. Even so, the prime lending rate (the amount commercial banks charge their prime customers) reacted slowly, only declining ½ pct. Mortgage rates showed even a slower downward trend.

What's more, the moves to ease

credit didn't bring a large boost in bank lending. Poor business conditions, of course, were a major factor. In addition, some banks were cautious about expanding their ratios of loans to deposits.

Overseas Drain—On top of this, the reductions in U. S. interest rates drove short-term capital funds overseas in search of better interest rates. It's estimated by the Chase Manhattan Bank that about a billion dollars worth of this type of money may have left the country in the third quarter alone. Foreign sources also converted their dollars into gold, contributing to the "drain" on U. S. gold stocks.

In all, U. S. gold stocks declined over \$1.5 billion in '60, with most of the decline coming in the second half of the year. Renewed efforts to lower short-term interest rates further could speed up this trend.

What to Expect—Against this background, what can you expect in the money market in '61?

The overall prospect is this: Efforts will be made to ease long-term interest rates to encourage borrowing. On the other hand, efforts will probably be made to keep short-term rates firm. This is necessary to prevent the continued flow of "hot money" abroad, seeking more favorable interest rates.

Foreign Moves Important

■ How successful will these moves be? Some government economists are not sure if some rates can be changed without affecting others. They also see the international situation having a prime influence on what can be done.

Recently, for example, some European central banks have reduced discount rates. This will lessen the incentive for shifting funds to these countries.

Factors Here And Abroad— Severe economic slump overseas would also drive down interest rates there. Barring this, foreign pressures will act to keep U. S. interest rates from falling very far.

Other influences at home could operate, however, to push down borrowing charges. These include: A continued business slump and the new Administration's desire to achieve lower interest rates.

Less Latitude—As a result, in '61 (and beyond) interest rates may fluctuate in a narrower range.

"Never in recent decades has our government been faced with such a narrow latitude in its economic policy," says Paul W. McCracken, University of Michigan professor, former member of the President's Council of Economic Advisers.

"The time may be past," says L. Merle Hostetler, vice president, Federal Reserve Bank of Cleveland, "when it is possible for a major country to bring about any given low level of interest rates, not in accord with contemporary economic forces, without erecting a complicated apparatus of direct controls."



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Zinc Stages Auto Comeback

Growing use of galvanized steel by automakers to combat corrosion is aiding zinc producers.

So is the return to chromeplated zinc diecastings for many decorative parts on 1961 cars. By A. E. Fleming

■ Suppliers of basic materials to the auto industry have viewed compact cars with keen interest in the past year. The smaller cars use less of practically all materials. Zinc suppliers are no exception.

How is this metal faring in today's complex car market? The biggest new potential for zine appears to be the auto industry's use of zinc-coated sheet steel on compact cars. The purpose is to fight corrosion, especially on critical under parts on unitized bodies.

Going Galvanized — The sharp increase in the use of continuously galvanized sheet by auto makers is seen as a continuing trend by the zinc industry.

Recent rise of the material is in-

dicated by the following figures on shipments of short tons of galvanized sheet steel to the U. S. auto industry: 1955, 87,408; 1956, 91,-057; 1957, 124,196; 1958, 133,-215; 1959, 158,280; 1960, 212,-300 (estimate).

The 1961 cars using substantial amounts of galvanized steel include all cars in the Ford line, the Buick Special, Chevrolet Corvair, Oldsmobile F-85 and Pontiac Tempest. Indications are car makers will use more galvanized sheet in 1962 models.

Chrome-Plated — Another zinc booster: Producers point to signs of a return to chrome-plated zinc diecastings in high-corrosion areas of volume production models.

When asked about corrosion of chrome plate on hundreds of auto exterior zinc die castings, American Zinc Institute's executive vice president, J. L. Kimberly, said a number of improved ways to apply chrome plate (copper-nickel-chromium) to zinc die castings have recently been adopted by most car makers. The new chrome plates are said to test

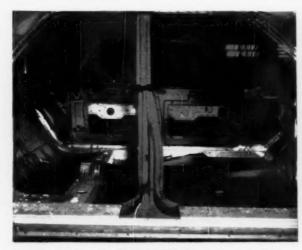
out three to five times better than previous service life.

More Diecastings—The AZI told The IRON AGE that automotive use of zinc diecastings for full size models is up more than 15 pct over 1960 cars. Important increases are prominent in Buick, Chevrolet, Oldsmobile, Cadillac, Imperial, Chrysler, Thunderbird and Lincoln. Studebaker remains about the same as 1960. American Motors is down somewhat.

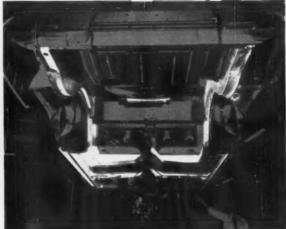
General Motors Corp.'s cars are using zinc diecastings for instrument housing components almost exclusively. Buick, Oldsmobile, Pontiac and Lincoln have diecast zinc grilles, while Mercury uses zinc heavily.

Other Parts—Diecast zinc grille components for Chrysler and Imperial have been designed as larger units in 1961 models. Another big zinc part is the quarter vent frame used in hardtops and convertibles.

Other parts that are still zinc diecastings are door handles, window crank parts, rear view mirrors and ornaments.

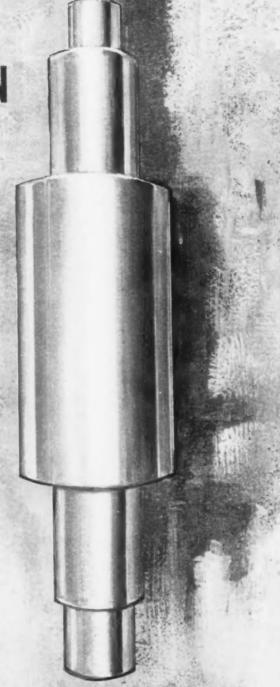


CORROSION PROTECTION: Gray areas indicate some of the use being made of galvanized steel for



greater rust protection in Ford Motor Co.'s 1961 Lincoln. All Ford cars make extensive use of it.

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Farwest Retains 1960 Optimism

This Year Looks Good for Aluminum, Aircraft Industries

Industry on the West Coast is retaining the cautious optimism that prevailed throughout 1960.

Farwest aluminum producers look for continued expansion; aerospace projects should keep pace with 1960's rate. By R. R. Kay

 Cautious optimism is the order of the day in the Farwest.

The new census figures reveal that the region is one of the nation's fastest growing areas for metal working's goods and services.

So what's ahead for the Farwest in 1961?

Here's a capsule rundown:

You can figure that the region will again chew up 15 pct of the national aluminum market.

Primary aluminum producers in the Pacific Northwest expect to turn out about 525,000 tons this year. That's the same as in 1960. Some 15,000 tons of new capacity will come in.

The Same Rate—Last year, the aluminum industry there operated at 75 pct. And it expects to run at the same rate this year. Aluminum producers are optimistic about getting into the can market.

The 13 Farwestern states will consume 6.5 million tons of steel. Last year, buyers took about the same tonnage and used it up. The industry should operate at 65 pct of capacity, on a rising note.

More Steel Usage—Construction, the mainstay of the industry in the Farwest, will use more steel this year than last. Huge projects are in the works. Home building, though, will be down. This will hurt contractors' products — water heaters, furnaces, and coolers for example.

To sum it up, look for a slow decline in steel output during the first half. But the fourth quarter should bring a healthy upturn.

The space age moves rapidly ahead. And President-elect Kennedy is almost certain to keep defense spending on the upgrade.

The aerospace industry is still No. 1 on the West Coast. It has a \$6.5 billion backlog. Here's how it's made up: Missiles, \$3 billion; military aircraft, \$2 billion; and commercial aircraft, \$1.5 billion.

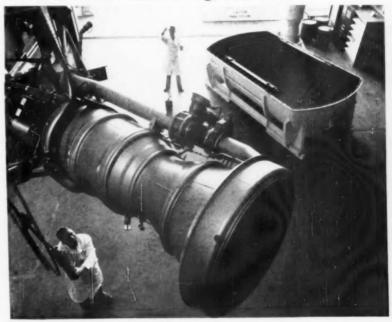
Custom-Made Missiles—Missiles during the next three or four years will still be custom-made. That's unless, of course, there's a national emergency.

Business will continue at the same pace during the new year.

This is sure: Some 35,000 aerospace workers will lose their jobs. You need fewer workers to make a missile than an airplane. That will reduce the industry's payroll to about 325,000 persons.

But they'll still draw down \$47 million per week, the same amount as last year. Why? The emphasis is on higher skilled, higher paid production and engineering employees.

It's a Rocket Launching Veteran



OLD FAITHFUL: Rocketdyne's A-7 liquid propellant engine has launched 65 Redstone rocket flights since 1953, including orbital launching of Explorer I, the first successful U. S. satellite. The Redstone is used as a booster in NASA's man-in-space Project Mercury.



He's Watching a Band Sawing Miracle

This band saw operator at the Bell & Gossett Company plant in Morton Grove, Illinois, is watching "Controlled Accuracy"... accuracy, being held to within a few thousandths of being perfectly straight, and he can actually see the band blade being guided in the saw cut to produce this accuracy! No further machining is required before the pipe is welded into an assembly for a Bell & Gossett Heat Exchanger Unit.

Band sawing accuracy like this is nothing short of miraculous—especially when it can be done on a high production basis, as Bell & Gossett is doing. And when the same tolerances can be held on cut-off pieces from 2" to 18" in diameter, this Marvel #81 Band Saw Machine can be truly called a precision machine tool.

The secret of this amazing sawing accuracy is in the Marvel "Sure-Line" Automatic Accuracy Control—a simple and extremely effective

electro-mechanical servo-mechanism that continuously senses and automatically corrects any tendency of a band blade to drift to either side of a desired line of cut. The "sure-line" unit literally "steers" the blade to make a straight cut. This permits the use of heavier feed pressures and, when desirable, higher blade speeds, to do the work faster, without sacrifice of accuracy. Incorporated in the new Marvel #81 Series High Speed Heavy Duty Hydraulic Band Saws, the "sure-line" permits full utilization of all the advantages of high speed steel band saw blades—while extending their usable blade life as much as 50%.

Before you buy any band saw machine, get complete details on MARVEL #81 Series Single Cut, or Automatic Shuttle Type Bar Feed Production Band Saws—the machines DESIGNED AND BUILT TO REDUCE SAWING COSTS. Write for catalog today.

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Tool Plants Run at Half Speed

Industry Has Capacity for \$1 Billion Yearly Business

The machine tool industry has run at little more than 50 pct of capacity for the past year.

Few builders foresee any substantial upturn for 1961. But foreign orders should help. By R. H. Eshelman

■ As the year ended, preliminary data for November from the National Machine Tool Builders Association, revealed that overall 1960 cutting tool shipments will add up to another \$500 million year. That's estimated to be only about half the industry's capacity.

It's apparent that this country is far from turning out the number of machine tools of which it is capable. Russia produced an estimated 160,-000 machine tools — more than double the number of U. S. units.

Some Optimism—This isn't catastrophic yet. However, at present few people in the industry see anything on the immediate horizon to alter the trend.

However, in some quarters there's still cautious optimism for the long-range outlook. Widely expressed urgency for greater productivity in American plants can only be translated into being by more modern technology. This means new machines. Some feel that normal attrition should build up greater demand.

History Lesson — Just on past history, according to James K. Fulks, executive vice president of Ex-Cell-O Corp., the industry is due for a turnabout soon. He points out that present machines are operating in the nation's plants at a high level turning out autos, trucks, refrigerators, and other appliances. As fa-

cilities wear out and products change, manufacturers will have to come into the market again for replacements.

Big disappointment of the year was failure of a real buying surge to materialize after the Chicago Machine Tool Exposition in September. Many builders hope this will prove merely a delayed reaction; that more order activity will result in the new year.

Welcome Surprise—Big surprise of 1960, of course, was the high volume of exports of American tools. Much of this business can be regarded as one-shot type. Most of it has gone to plant expansion. But

there are signs it may go on as long as the big boom in Europe continues.

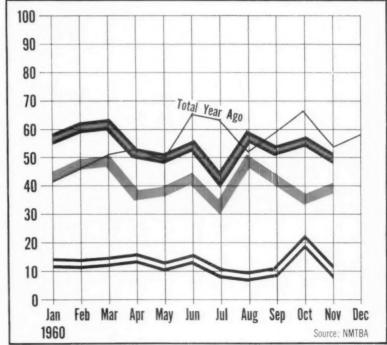
H. A. Beyer, of DeVlieg Machine Co., recently returned from a business trip overseas. He believes the market there will continue to be good in specialized areas. "If you can show a substantial productivity increase, or better precision for your machine, you have a good chance, despite the price differential," he reports.

Do these signs point to growth of a real world market? Shortages of skilled labor in Europe and heavy backlogs of foreign machine builders could spell good news for some time.

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G. M. Feiel, elected vice president and comptroller, Republic Steel Corp.

Detroit Stamping Co. — H. C. Robeson, named vice president and asst. general manager.

Crane Co.—H. R. Riggs, elected a vice president.

Vulcan Mold & Iron Co.—C. F. Moersch, Jr., promoted to asst. to the president.

Cal-Metal Pipe Corp. of Louisiana—K. S. Bayless, elected executive vice president.

National Distillers & Chemical Corp. — R. R. Herrmann, Jr., elected a vice president.

Firth Sterling, Inc. — G. A. Wilson, appointed vice president, purchases and special projects.



W. E. Gregg, appointed vice president, operations, Crucible Steel Co. of America.

Globe-Wernicke Industries, Inc.

—Chester Devenow, elected president; W. D. Hahn, named chairman of the board.

Aluminum Co. of America—H. C. Erskine, elected executive vice president; E. B. Wilber, named vice president, finance; J. D. Harper, elected vice president, Smelting and Fabricating Divisions; G. W. Streepey, elected vice president, Raw Materials and Refining Divisions; M. W. Stanley, elected treasurer.

Grove Valve & Regulator Co.— Harold Wolpman, promoted to senior vice president; W. L. Connolly, appointed vice president, manufacturing.

EMCOR Ingersoll Products Div., Borg-Warner Corp.—E. M. Mason, appointed purchasing agent.

Acoustica Associates, Inc.—E. B. Cochran, named vice president, finance.

Precision Castings Co., Cleveland Div.—A. G. Witt, appointed general sales manager.

The Carborundum Co.—E. L. Anderson, Jr., appointed director, purchasing.



E. A. March, becomes director, technology, Crucible Steel Co. of America.



W. B. Boyer, elected vice president and treasurer, Republic Steel Corp.

The Champion Rivet Co.—D. J. Champion, appointed vice president; J. A. Diemer, promoted to asst. to the president.

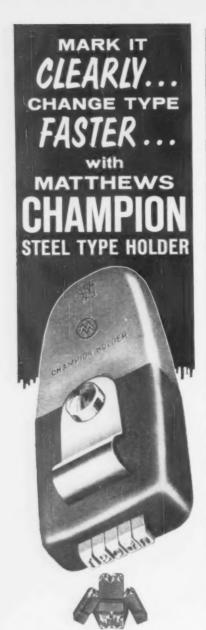
Pullman-Standard Div., Pullman Inc. — R. F. Bogan, appointed manager, industrial marketing.

Wolverine Tube, Div. of Calumet & Hecla, Inc.—E. J. Shadd, appointed sales representative, Moline, III.

The Abrasives Div., Elgin National Watch Co. — Ralph Peek,



S. A. Shuman, elected vice president and general manager, National Supply Div., Armco Steel Corp.



Sturdily built, perfectly balanced, the Matthews Champion Steel Type Holder insures perfectly aligned, clear cut marking. Type changes are fast and easy, with the patented Matthews spring clip assembly. Type faces are precision-engraved on highest quality alloy tool steels.

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promoted to district sales manager, diamond products.

Superior Valve & Fittings Co.— A. P. Skowronek, appointed manager, production.

Chrysler Corp., Engineering Div.

—A. E. Kimberly, appointed chief engineer, vehicle reliability.



Gerald Lewis, appointed vice president, marketing and engineering, Cooper Alloy Corp.

Diamond Manufacturing Co. — P. A. Laidlaw, appointed general sales manager.

U. S. Steel Corp., Market Development Div. — C. S. LeCraw, Jr., appointed asst. to the director.

E. F. Houghton & Co., Detroit Div. — J. H. Richard, appointed sales manager.



N. J. Vang, elected vice president, manufacturing, Cohart Refractories Co.



E. C. Manix, appointed vice president and general manager, sales, Quaker State Metals Co., Div. of Howe Sound Co.

Eutectic Welding Alloys—Southwestern Div., Inc.—R. L. Carpenter, appointed manager, Dallas Service & Training Center.

Armour Research Foundation — Harry Schwartzbart and R. J. Van Thyne, appointed asst. directors, metals research.

Great Lakes Steel Corp., Div. of National Steel Corp.—C. C. Hilton, appointed superintendent, primary mills, Ecorse, Mich., main plant.

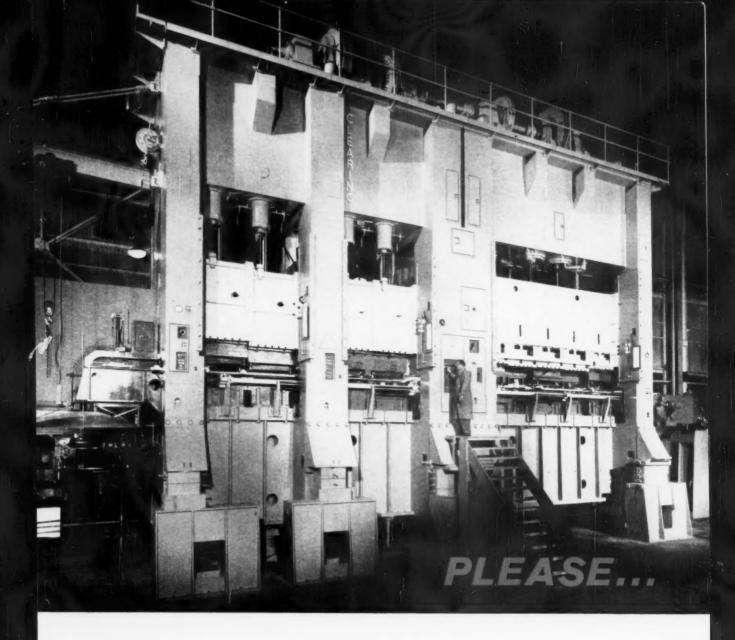


J. H. Butler, elected vice president, The Binkley Co., Warrenton, Mo.

The Colorado Fuel & Iron Corp.

—M. J. Reynolds, appointed superintendent, South San Francisco
plant in California.

Atlantic Steel Co., Warehouse Div.—J. T. Walkden, named stain-(Continued on P. 116)



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Run down the list of special steels you need. You can get all of them — tool steels, high speed, stainless, alloy steels, and even titanium—immediately from the local Crucible steel center. This center is a single, integrated source for every steel and it saves time and money for you.

The steel center's procedures make ordering convenient, too. The inside account salesman can almost always confirm in-stock delivery of your order. But if he can't (which rarely happens), he can quickly locate them at other centers or at the mill. And he can do this while you're on the phone—

because of Crucible's electronic inventory control and teletype systems.

The Crucible local steel center maintains all the facilities for fast service. It has a battery of saws: huge hacksaws and fast-cutting bandsaws that quickly process your order. And it has a fleet of trucks at its command. So, orders get underway the moment you hang up the phone.

A single phone call brings the services of Crucible's entire operation—integrated from steelmaking to local delivery to you. Crucible Steel Company of America, Dept. PA06, Pittsburgh 30, Pa.

MONTHLY STOCK LIST gives you up-to-date news on local stocks of specialty steels. Ask the Crucible salesman to put your name on the mailing list.



•FROM CRUCIBLE LOCAL STEEL CENTERS: TOOL STEELS — Water, oil, air hardening, shock resisting, hot work, plastic and die casting steels in all forms, including bars, sheets, plates, drill rod, hollow bars, forgings and flat ground stocks • HIGH SPEED STEELS — Crucible's famous "Rex"® steels: Rex Thrift Finish rounds, hot rolled and cold drawn flats and squares, drill rod, forgings, sheets, plates, and tool bits • STAINLESS STEELS — Bars, sheet, strip, wire, cold heading wire, metalizing wire, plates, angles • FREE MACHINING STEELS — Crucible Max-el® rounds, hexagons, plates and brake die steel • ALLOY STEELS — Bars, billets, strip and sheet • COLD ROLLED CARBON SPRING STEELS • DRILL STEELS — Hollow and solid drill steels • ALUMINUM EXTRUSION DIE STEELS • HOLLOW TOOL STEEL • HARD FACING ROD • PLASTIC MOLD STEELS • PERMANENT MAGNETS • and many others.

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BRANCH OFFICES AND STEEL CENTERS: Atlanta • Baitimore • Boston • Buffalo • Caldwell, N. J. • Charlotte • Chicago • Cincinnati • Cleveland • Columbus • Dallas • Dayton
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INDUSTRIAL DEVELOPMENT DEPARTMENT
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The Bessemer Man is at your "Site Service"

(Continued from P. 112)

less and aluminum products sales manager.



H. E. Miller, appointed chief metallurgist, Cleveland district steel plant, Republic Steel Corp.



W. P. Goodman, Jr., named Indianapolis district sales manager, Inland Steel Co.

Frederic B. Stevens, Inc.—Ralph Tomlin, appointed foundry sales representative, parts of Wisconsin.

The Youngstown Sheet & Tube Co.—W. J. Harnisch, appointed as legislative counsel.

Duff-Norton Co.—N. F. McA'-Nulty, appointed sales representative, New England.

Mansaver Industries, Inc.—Harvey Bradley, appointed service and development engineer.

Stromberg - Carlson's Telecommunication Div.—C. R. Fisher, appointed manager, product engineering.

Electric and open hearth steel castings

from 1 lb. to 100 tons.

Breakdown Will at

As a major part of an extensive expansion program at its Terre Haute.

Indiana plant, Anaconda Aluminum Co. has installed this pertranungen 66-inch four-high cold rolling Breakdow

Mill. This equipment produces aluminum strip with a minimum thickness of .012" up to 60" wide at a speed of 1,200 feet per minute to help meet the increasing

volume of orders specifying exacting gauge tolerances and surface quality. The mill also produces foil stock for Anaconda Aluminum's Foil Division at Louisville, Kentucky.

Important design features of this PITTSBURGH mill include hydraulic roll crown control, special reel drives to provide added flexibility and strip gauging equipment for automatic gauge control.

For all your requirements in rolling mill equipment and related facilities, contact PITTSBURGH.



TSBURGH

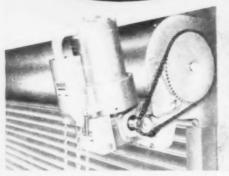
ENGINEERING & MACHINE DIVISION

Pittsburgh Steel Foundry Co., Textron Inc.

564 FORBES AVE., PITTSBURGH 19, PA. . PLANTS AT GLASSPORT AND McKEESPORT, PA.



and the finest power operator ever devised



Here's compact "bonus power" for efficient rollingdoor action! The New Kinnear Motor Operator permits either face-of-wall or wall-bracket mounting vertically or horizontally - for either adjacent or thru-the-wall door control. Thermal protection is built in motor cuts out before overload damage can occur. Centrifugal clutch starts door action with no shock, no jolt, no stalling! New worm gearing extends the life of the operator-unit even beyond previous

limits! Seven sizes assure capacities

Kinnear invented the door with the interlocking steel-slat curtain more than half a century ago! And today's Kinnear Rolling Doors still lead in all-around door efficiency!

Opening straight upward they coil smoothly out of the way above the doorway.

They clear the entire opening quickly, from jamb to jamb and from floor to lintel.

They stay out of reach of damage by wind or vehicles.

All floor and wall areas around Kinnear-equipped doorways are always fully usable.

Ceiling space also remains clear, for unimpeded use of overhead cranes, hoists, conveyors, ductwork, or lighting.

The tough, flexible, all-metal Kinnear curtain assures long service, low maintenance costs, extra protection against fire, wind, intrusion, or vandalism.

Heavy galvanizing (1.25 ounces of pure zinc per sq. ft. of metal, ASTM Standards) — plus Kinnear Paint-Bond — adds high resistance to weather, wear, and corrosion.

For push-button or remote-control efficiency, there's no match for the all-new Kinnear Motor Operator (optional, at left).

Kinnear Rolling Doors are built in any size. Get Kinnear recommendations on your door needs. Write the Kinnear Mfg. Co. (Factories: 1760-80 Fields Ave., Columbus 16, Ohio, and 1742 Yosemite Ave., San Francisco 24, Calif.) Offices and agents

in all principal cities.

Available FREE Kinnear Motor-Operator Bulletin . . Kinnear Rolling Door Catalog.



for every need. For the best possible push-button door efficiency, combine the Kinnear Motor Operator with ... Kinnear Rolling Dool

Studies Cutting Problems

Many shops are having trouble trying to cut the new alloys; they can't be handled like standard metals. Refractory metals pose an especially tough barrier. However, a midwest research organization says these problems are not insuperable. Some of its recommendations in high-temperature-alloy machining will soon be available through the Air Force.

Who Is GIGI?

GIGI stands for "gamma inspection of grain integrity." It's a quality-control method based on radiation given off by cobalt 60. Flaws as small as 0.03-in. inside rocket motors several feet in diam can be detected without using X-rays. Inspection is by introducing a "pill" of radioactive cobalt inside the hollow core of the motor and measuring the intensity of gamma rays given off.

Ignition Point Is Factor

The behavior of metals at high temperatures is of vital importance to propulsion design engineers also. Oxidation and ignition traits must be known for designing rocket engines. Recent studies show that stainless steels with high nickel contents are especially suitable.

Novel Approach Succeeds

Development of a method for making cylindrical skin sections has widened the scope for lightweight, high-temperature, magnesium-thorium alloys. The technique involves welding and shear forming. The skin is wrapped and welded before heat treatment. After treatment, shear forming contours the skin. Next, an aging cycle develops the full T8 properties of the alloy.

Hazards of Outer Space

Can a pea-shooter sink a battleship? Maybe not. But pea-sized meteoroids may be able to shoot down a rocketship. These minute particles whiz through space at speeds from 35,000-200,000 fps—fast enough to puncture the skin of a

space vehicle or ruin its instrumentation. Some of the answers may be found at a unique shooting gallery. There, tests are being made of the effects of tiny pellets shot at simulated space-vehicles.

Keep Up With Welding

Want to know how to weld titanium and precipitation-hardenable stainless steels? Are brittle fatigue and fracture problems? Four new reports from the Defense Metals Information Center discusses developments in the fabrication of structures for space and underwater craft.

Aid Small-Plane Financing

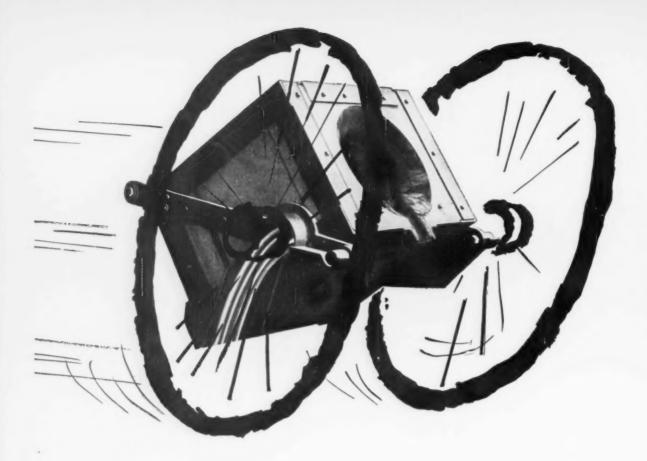
More and more executives must be taking to the small, private airplane. One aircraft company reports that over 20 pct of the 1961 business-aircraft sales goal has already been reached. To aid in merchandising, the same company will offer a finance plan which allows customers to make major improvements by credit purchases of modernization kits and exchange engines.

Who Gets the Engineers?

Wondering where all the engineers go? A recent statement by an aircraft industry spokesman puts one-third of the available practicing U. S. supply of engineers in the aircraft industry. But, by the same token, he reckons that at least one-third of industrial research and development is carried on by companies in the aircraft and missile fields.

Take New Look at X-15

Overlooked in current focus on satellites, missiles, and rockets is the acceptance of the X-15 rocket plane. It may actually be the best candidate for the first man in space. The X-15 also underscores new military thinking. Winged-type spaceships that land on conventional airports are being favored for military space missions. Advantages: cost, reliability, flexibility and strategic superiority.



WHY INDUCTION MELTING IS ON THE MOVE AGAIN

Take the basic advantages of induction melting.

Add improvements that save time, cut costs, and increase service life.

.That's what Inductotherm has been doing for the past seven years. The result is a new style of induction melting that's far more flexible, far more useful, far more desirable.

For example, Inductotherm introduced the first fully assembled control cubicle that combined all capacitors, controls, and safety devices in one pre-tested unit. And Inductotherm was first also with the Inducto "Integral" series, packaging the motor-generator set in the control console.

Inductotherm cut the cost of power and of pit construction by feeding leads through the trunions of tilting furnaces. And service life has been lengthened . . .

maintenance reduced through the use of rigid, Heliarc welded furnace construction.

New Inductotherm ideas have induction melting on the move

The biggest innovation in induction melting has been the Inductotherm concept of service. Not just fast repairs and overnight replacement of parts (even M-G sets) . . . but a basic concept: Inductotherm is out to fit induction melting to your needs. We will make every effort to improve our equipment and the induction technique, never asking you to trim your needs to the limitations of our equipment.

If you'd like more information on Inductotherm furnaces, write for Bulletin 70. But, for a taste of Inductotherm service, ask to have an engineer call. Inductotherm Corporation, 412 Illinois Ave., Delanco, N. J.



NDUCTOTHERM

Survey Report:

What Metalworking Executives

Forecast for 1961

■ The year-end attitudes of metalworking executives will have a strong impact on business throughout a good part of 1961.

Based on recent experience and their own estimates they will make judgments on capital spending, costcutting and marketing programs which will be turned into action in the immediate months ahead.

'61 Outlook—To find out how they feel about the outlook for sales,

profits, price increases, wages and materials costs in 1961, The IRON AGE surveyed some 2,200 metal-working executives during the early weeks of December.

The results are reported in this survey, for the industry as a whole, and for some 20 different industries within metalworking.

The survey covered all plants in these industries that employ at least 50 or more production workers.

The replies came from companies that represent 40 pct of the production worker employment in these 20 metalworking industries.

Pct Replies—This 40 pct represents 386,750 workers out of a possible 966,000 production workers employed in these industries.

The 903 executives replying to this year's survey come to 41 pct of the 2,200 queried.

Overall Summary and Reports by Industries

	Summary	
Construction MachineryP. 128	Gray Iron FoundriesP. 154	Malleable Iron FoundriesP. 178
Conveyors, Cranes and HoistsP. 132	Heat Treating EquipmentP. 158	Nonferrous Foundries
Copper and Brass Rolling P. 136	Industrial Trucks	Pumps and CompressorsP. 188
Electric MotorsP. 140	InstrumentsP. 166	Steel ForgingsP. 192
Switchgear & Electrical ControlsP. 144	Job StampingP. 170	Steel Foundries
Fasteners	Machine Tools P. 174	Welding Equipment

Detailed Figures-One of the important features of the survey is the detailed breakdown of the answers by industry. Each group of replies is classified according to the government's Standard Industrial Code (SIC), on a 4-digit basis.

For example, replies from executives in malleable iron and steel foundries are classed under SIC 3322 and 3323 respectively, rather than under the broader iron and

steel foundry group, SIC 332.

For companies selling to both or either of these groups, this distinction is important. It also enables others to judge more accurately the future course of specific industries.

1961: Tighter Squeeze on Profits

Here is the 1961 outlook for sales, profits, selling prices, wages and materials costs as reported by metalworking executives in 20 industries.

Industry by industry reports begin on p. 127.

Sales: Overall Trend Is Up

 Most metalworking executives replying to this survey look for higher sales volume in 1961.

Some 49 pct expect sales to top those of last year. The next largest group, 28 pct, see 1961 sales holding about level with 1960. Only 23 pct forecast a sales drop in '61.

Several industries ran well ahead of the rest of the group in forecasting higher sales for next year.

Leading the way was the nonferrous casting industry with 76 pct of the executives in this group predicting higher sales. Next came manufacturers of welding equipment with 64 pct of the industry's executives looking to top 1960.

Profits: Most See '61 Drop

· Even if sales rise, few executives in the 20 industries surveyed expect profits to go along with them.

The greatest number of metalworking executives, 45 pct in fact, look for lower profits in 1961. Another 25 pct see no change in their 1961 profit picture. However, the remaining 30 pct hold out hope for higher profits this year as compared with 1960.

Wages, materials costs and foreign competition were among reasons given by metalworking executives for the slimmer profit outlook.

Price-cutting, however, seemed to be the most significant factor in the lower profit picture for 1961.

Continued on P. 124



1961 Sales:

Pct Said

HIGHER

LOWER

NO CHANGE

What Metalworking Executives Forecast for

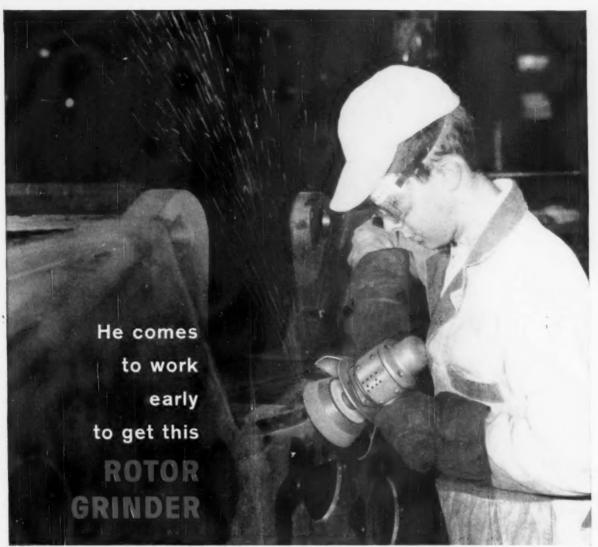
1961 Profits:

Pct Said

HIGHER

LOWER





Courtesy Thew Shovel Company, Lorain, Ohio

... IT'S LIGHTER
... MORE POWERFUL
... CUTS JOB TIME 40%

JOB: Grinding weldments for power shovels—welds in many positions. Conventional vertical air grinder is heavy—excessive speed drop under load.

Purchased Rotor M 1132 B-7S vertical air grinder (6000 rpm).

RESULTS: Lighter, more powerful grinder cuts job time 40%. Operator shown likes it so much better than other grinder, he comes in early to get it! Savings paid for this Rotor Tool in 10 weeks. *Ask for demonstration* of any Rotor Tool on *your* work to find out how *you* can save. No obligation.



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Prices: Steady, Some Cuts

 Holding the 1960 price line throughout this year seems to be the order of the day for a majority of metalworking industries.

A majority of 51 pct of the executives say their companies will not install higher price schedules this year. Another 32 pct of these executives do plan price boosts. However, some 16 pct plan to drop prices to meet competitive pressures.

At best, most companies are hoping that higher sales will bring price stability and a return to "price integrity."

Wages: No Drop in Sight

■ An overwhelming majority of industry executives see their wage costs climbing in 1961. None predict a wage drop.

Some 13 pct of them forecast that 1960 wage levels will hold steady throughout the year. But a solid 87 pct look for higher wage costs.

Undoubtedly, the wage-cost factor is a big reason for the anticipated drop in profits this year.

In some industries, over 90 pct of the executives reporting in this survey said higher wages will be the profit bugaboo in 1961.

Materials: Will Cost More

Along with wages, most metalworking executives in these 20 industries forecast higher materials costs next year. But the percentage is not nearly so great.

Some 63 pct said they would pay more for the materials they buy in 1961. Another 33 pct expect little or no change. Only 4 pct could see any chance of materials costs dropping down.

Hardest to be hit by higher materials costs in 1961 seems to be machine tool builders and manufacturers of heat treating equipment. Ninety pct of the furnace makers forecast higher costs.

What Metalworking Executives Forecast for

1961 Prices:

3Z Pct Said

A

HIGHER

16 Pct Said

LOWER

V

51

Pct Said



What Metalworking Executives Forecast for

1961 Wages:

87 Pct Said

A

HIGHER

Nobody Said

LOWER

13 Pct Said

NO CHANGE

What Metalworking Executives Forecast for

1961 Materials Costs

63 Pct Said

A

HIGHER

4 Pct Said

LOWER



33 Pct Said



For over 75 years steel has been poured into Valley Moulds, and now the new metals... used in space will also be poured into

VALLEY INGOT MOULDS



Support the STEELMARK

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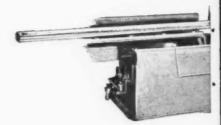
GENERAL OFFICES: Hubbard, Ohio WESTERN OFFICE: Chicago, Illinois NORTHERN OFFICE: Cleveland, Ohio LOOK TO

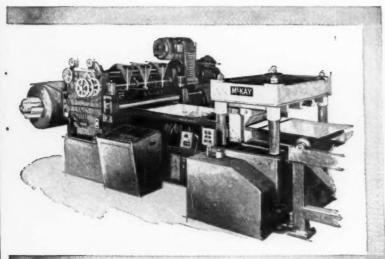
MSKAY

MACHINE

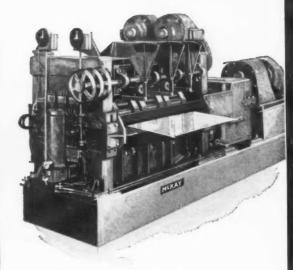
FOR PROGRESS IN METAL PROCESSING

MCKAY PIPE MILLS





MCKAYMATIC* DIE SHEAR LINES

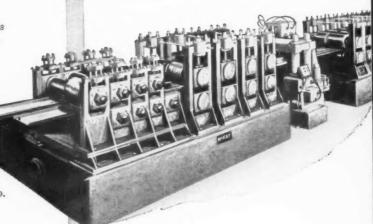


MCKAY ROLLER LEVELERS

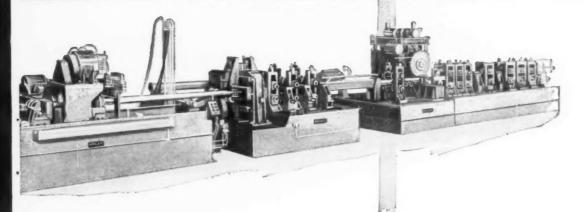
No machine manufacturer puts more into its products than does McKay. Metal producers and fabricators have learned they can expect and get integrity and honest value—the most advanced design and engineering—the finest construction and service—when they specify McKay Machine metal processing equipment.

Look to McKay Machine in 1961 for more automatic machines, like those illustrated here, well conceived and skillfully developed to help you do your work faster, better and more economically than ever before.

The McKay Machine Company, Youngstown 1, Ohio.



MCKAYMATIC* FORMING MILLS



Profits Will Probably Drop

While the sale of construction machinery will be slightly higher this year, profits should drop.

Price cutting, foreign competition, and increased costs hurt the industry in 1960. Also, construction work was below anticipated levels.

• Sales of construction machinery will be slightly higher this year than in 1960, but the squeeze on the profit margin will continue to tighten and profits will probably drop.

This prediction is the result of an IRON AGE survey covering all plants in this industry that employ at least 50 production workers. Replies represent 35 pct of the employment in this group.

Manufacturers also look for an increase in the selling price this year. However, bigger jumps are expected in the cost of labor and materials.

The Problem-Almost every re-

sponse to the survey reveals a decline in profits in 1960. And the situation seems to be growing worse. Last year the industry was optimistic about 1960's potential and confident about the sales outlook.

However, price cutting, foreign competition, and increased labor and material costs have cut profits. Then, too, 1960 didn't pan out as well as expected for the construction industry. Housing starts, in particular, were down. And highway programs weren't pushed to any

More Sales, But Less Profits in 1961

Profits Prices Sales Wages Materials

44

41

46

In Pct Reporting UP or DOWN

SIC 3531

great extent. In fact, the Dept. of Commerce says public construction was down nearly 2 pct in 1960.

According to some manufacturers, the publicity given to 1960's construction potential caused many to over produce. This led to price cutting within the industry to meet foreign and domestic competition.

Steel Production Hurt—Other industry leaders point out that the lull in steel production has had a definite bearing on sales.

Whereas the construction machinery industry has been coming out with several new developments in recent years, the chances are that 1961 will not see too many changes.

The reason for this is overstocked inventories and a cutback in research and development. Many of those responding to the survey note that the reduced profit margin meant expenditure cutbacks. One of the areas most affected by this was R&D.

Another Factor—Also considered to be hampering the industry's profits is the increased cost of components. Many say that component parts comprise as much as 35 pct of the total selling cost of the machinery.

SIC 3531
Percent of Replies by Plant Size:

Plant Size, No. of Workers	Plants by Size	Replies from Group by Size	
50 to 99	32 Pct	25 Pct	
100 to 249	32 Pct	35 Pct	
250 and over	36 Pct	40 Pct	



Chain Belt Co

What Industry Executives Say

Then, too, the industry says, 1960 was an election year and many buyers were hesitant to make large commitments. In this respect, 1961 could result in increased orders.

Generally, the construction machinery industry, like others in 1960, was plagued by increased costs and lower profits. The outlook for 1961, while not optimistic, is definitely encouraging. The industry doubts there will be a solution soon for the rising costs, but hopes that increased construction activity will be one step toward offsetting expenses.

"The chief reason is that we are forced to hold the line on prices because of competition while we must absorb higher taxes, higher material costs and higher labor costs." G. P. Towle, President, Sturtevant Mill Co., Boston, Mass.

"Price cuting is the prinicipal cause of lower profits. Instead of trying to get more than your share of the available jobs at no profit, sell fewer jobs and then get them done more efficiently. Taxes and high labor fringe benefits are the

Continued

Construction Machinery, continued

next two millstones around the industry neck." Edward Allen, President, Star Iron & Steel Co., Tacoma, Wash.

"Price cutting, taxes, and high labor and material costs are reducing profit margins. The trend cannot be reversed until the continuous rise in labor costs is checked and government allows business to retain enough of its earnings to keep its facilities up to date." G. C. Smith, President, Smith Engineering Works, Milwaukee, Wis.

"Price cutting is on the increase by plants which do custom work and need to keep a good volume of work coming in. It's becoming a 'dog-eat-dog' business. Other manufacturers face the same problems. The real question facing manufacturers is: 'Are we better off with some work and no profit, or no work and no profit?" D. G. McIntyre, Vice President, **Skagit Steel & Iron Works**, Sedro Woolley, Wash.

"Too many times prices are dropped solely to make sales rather than because of cost reductions. The only solution to the problem of squeezed profit margins is to control inflation, especially labor costs, so we can compete with imports." W. H. Schnacke, President, Schnacke Manufacturing Corp., Evansville, Ind.

"Price cutting, increased taxes, and increased labor costs are all concerned. I think, with 'lack of principle' as being the major catalytic agent responsible for their precipitation of a trend toward lower profit margins. Unless all three participants in this reactionary trend, namely, management, government, and labor, get together on a cooperating basis of mutual problem diagnosing, nothing will be accomplished. In fact, if we could find the cure for price cutting, taxes, and labor costs, then foreign competition and the inability to modernize would take care of themselves." C. L. Fricker, Purchasing Agent, Lippmann Engineering Co., Milwaukee,

"Taxes and labor costs are the most important to us. We wish we knew what we could do to reverse the trend, but our post-election opinion is that the situation will get a lot worse before it gets any better." M. M. Findley, Assistant Manager, Badger Machine Co., Winona, Minn.

"The sale of replacement parts is an important part of the construction machinery business. We who have created the machine and designed the parts from which it is made are suffering from 'pirate' suppliers of these parts. They have made substantial inroads in the industry. In general, they offer an inferior product at a cheap price, but some of them are of acceptable quality." Vincent S. Penote, President, Cleveland Trencher Co., Cleveland, O.

RA 330° brings the space age CLOSER

RA 330 supports rocket cases in pit furnace 10 ft. diameter by 30 ft. deep.

RA 330 provides strength at 1900° F. to support, without fear of dropping, a 3500 pound load; resistance to thermal shock of rapid heating and air quenching; resistance to furnace atmosphere and oxidation.

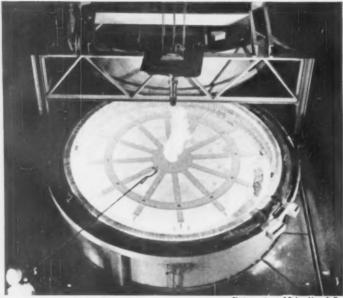


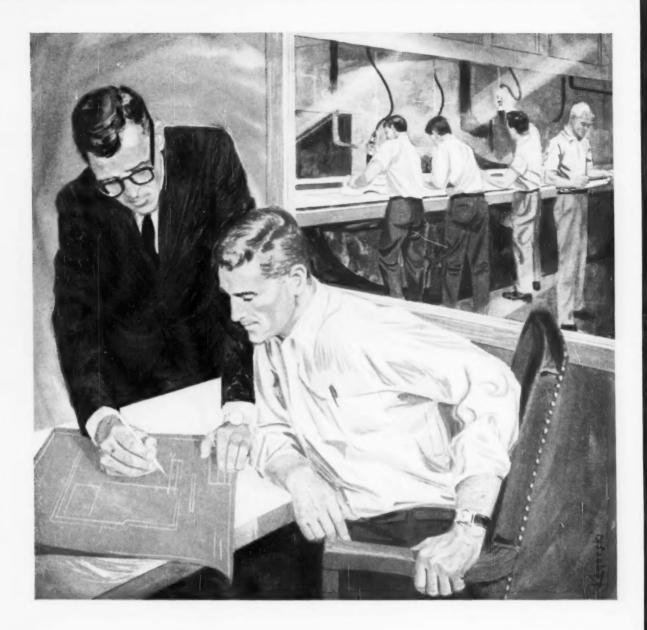
Photo courtesy of Solar Aircraft Co.

Based upon highly successful use of RA 330 in other applications with temperatures ranging up to 2250° F., Solar Aircraft Company selected RA 330 for this critical application.

For best performance specify RA 330 for your heat treating fixtures and furnace parts.

Rolled Alloys Heat Resisting Alloy Specialists will gladly be of service. For technical data send for Bulletin No. 107. ROLLED ALLOYS, INC. (2)
Heat and Corrosion Resistant Alloy Specialists

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He air-powers production—simplifying work, multiplying output, cutting costs. When tool engineers need to speed drilling, fastening or other assembly processes, they call this Gardner-Denver man.

He's the Gardner-Denver Production Machine Specialist, an expert in automating all types of air tools. He helps design machines tailored to fit the job. He's

backed by skilled craftsmen who make realities of ideas. Using simple, standard components, they build automatic machines to perform complex operations at speeds that amaze even veteran production men.

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Sales and Costs Will Rise

Sales of handling equipment will rise in 1961. But so will labor and material costs.

Manufacturers are more reserved in making predictions this year. Automation could hold the key to a good year.

 Conveyor, crane and hoist makers predict increased sales and level profits in 1961. An IRON AGE survey of all plants in this industry that employ at least 50 production workers brought forth these results: Nearly 75 pct of those responding say sales will remain the same or go higher. The selling price of equipment, according to 90 pct, will also increase slightly. However, 80 pct of those surveyed report profits will remain the same this year or, if anything, dip downward.

The large majority expect the cost of labor and materials to increase significantly.

Less Optimism — Producers are more reserved this year and show much less optimism than at the start of 1960. At that time they had hopes of cutting costs in a drive for larger profits. Instead, costs have spiralled.

What had been expected to be a good year was also hampered by the

Can Increased Sales Offset Added Costs?



In Pct Reporting UP or DOWN



SIC 3535 & 3536

low level of steel production. This cut down the requirements for industrial trucks and other equipment.

Though 95 pct report that labor costs will be up in 1961, there appears to be less worry here as far as profits are concerned. The industry feels it can gauge its labor expenses in advance and allow for it. However, the cost of materials, which 78 pct say will climb, cannot be effectively gauged. And this is probably the biggest single factor in the industry's selling price.

Price Cutting Hurts—If any one factor can be pin-pointed as the reason the profit margin was squeezed in 1960, it would be price cutting. Worried by foreign competition and increased imports, many distributors offer large discounts.

The industry hopes to combat foreign competition in 1961 with newer products and a quality sales approach. New products, such as electronic warehousing, memory systems for sorting and moving, and new uses for closed-circuit television, are also expected to have an increasing effect on the 1961 market.

Producers are giving thought, too, to foreign manufacturing possibili-



Link-Belt Co.

What Industry Executives Say

ties. Confronted with higher wages, taxes and costs, the industry may be making some moves overseas. However, this would be on a very limited scale in 1961.

Automation Hopes — But, for now, manufacturers say they still have hopes of rebounding with greater use of automation. There is a definite trend toward better handling, and many producers will be turning out completely automated and programmed systems for moving raw materials and finished goods.

"Low production in the steel industry has cut down the requirements for industrial trucks. As a result of this, manufacturers of industrial trucks are cutting prices to secure orders. And this has to be done to maintain economy in their production departments." M. M. Botnick, General Sales Manager, Silent Hoist & Crane Co., Brooklyn, N. Y.

"Price cutting is the No. 1 problem in our industry. A major por-Continued

SIC 3535 & 3536 Percent of Replies by Plant Size:

	Total	Replies	
Plant Size, No. of Workers	Plants by Size	from Group by Size	
50 to 99	43 Pct	47 Pct	
100 to 249	29 Pct	8 Pct	
250 and over	28 Pct	45 Pct	

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Conveyors, continued

tion of the companies in this industry are operating in the red. In general, it's a sick industry." F. L. Pischke, President, American Monorail Co., Cleveland, O.

"It's too late now. We can look forward to higher wages, higher taxes, and an accelerated flow of American capital abroad where manufacturing conditions are better." J. B. Spain, President, Alvey Ferguson Co., Cincinnati, O.

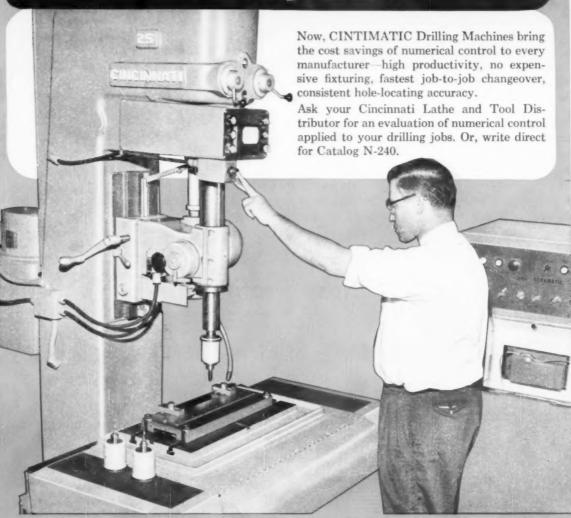
"We feel that one of the principal reasons for inadequate profit margins in the conveying industry is the current surplus of production capacity which has resulted in price cutting — oft-times below selling costs. We know that this is definitely true in two of our major product lines.

"Labor costs have climbed materially over the past several years, but the increase in hourly rates or salaries could readily be absorbed by improved production and material handling facilities if it weren't for the increased cost of so-called fringe benefits.

"With manufacturing plants in three states and sales offices in four others, we are quite conscious of the country-wide increases in local and state taxes. These have not been compensated for by a corresponding decrease in Federal taxes. Percentage-wise, these increases are quite material and are becoming a major factor in our so-called 'overhead burdens,' and a factor in our profit margins. Another factor which has exerted considerable pressure is the very substantial increase in freight rates." Russell B. Mass, President, Screw Conveyor Corp., Hammond, Ind.

"We have maintained a firm pricing policy and we are not interested in bidding or taking any job that does not return a fair profit. Others in our industry do not maintain such policies." C. L. Fell, Vice President of Marketing, American Monorail Co., Cleveland, O.

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Profit Margins Will Shrink

Rollers say sales will be up this year, but profits will definitely shrink.

A solution to the problem of cost cutting must be found. If not, some mills may end up operating in the red.

• Copper and brass rolling and drawing mills will feel the tight squeeze on profit margins this year. While sales will go up, profits will be going down.

That's the opinion of nearly 60 pct of the respondents to an IRON AGE survey covering all plants in this industry that employ at least 50 production workers.

The survey also reveals that the selling price of products will remain level or drop. Forty-one pct of those responding look for prices to remain the same. Another 43 pct look for drops. Only 16 pct say there will be any increase in selling prices.

Costs Will Climb—At the same time, 85 pct respond that the labor costs will increase and the other 15 pct say there will be no change. A mere 16 pct look for the cost of materials to decline, while 47 pct predict it will increase and 37 pct

Increasing Costs Close Profit Margin



In Pct Reporting UP or DOWN

= Pct Reporting No Change

SIC 3351

say it'll be the same this year.

Rollers initiated numerous technical advances in 1960 and several new marketing approaches were tried. Yet profits continue to shrink.

The industry labels the three most important factors affecting the squeeze on profit margins as: Price cutting, labor costs, and foreign competition. It seems to have no solution to the problem of price cutting. However, there are hopes that 1961 will result in a stronger tie between labor and productivity. The increase in labor costs, rollers note, is not matched by an increase in production.

No Tariff Relief—As far as foreign competition is concerned, the industry does not look for tariffs to be increased and, therefore, can see no relief this year. Executives do believe, however, that a rising trend to fight vigorously against imports may eventually pay off.

Rollers also feel that the government will have to take steps toward a greater depreciation allowance and a slash in the corporate tax structure before the profit margin squeeze will be eased.

SIC 3351					
Percent	of	Replies	by	Plant	Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size	
50 to 249	42 Pct	30 Pct	
250 to 999	39 Pct	45 Pct	
1000 and over	19 Pct	25 Pct	



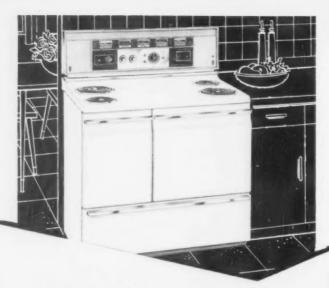
What Industry Executives Say

Increasing competition from steel and aluminum also has some brass men worried. The industry plans on promoting the durability of brass this year in an effort to regain some of the lost market.

Nevertheless, rollers still operate in the black. Their 1961 hopes are in finding a solution to the price cutting problem. If this can be found, profits may not fall as sharply as expected. If this is not found soon, brass mills could be using red ink before 1961 ends.

"Actually, our biggest loss of sales is due to substitution of other materials for brass. Our industry has lost valuable ground to the steel and aluminum industries. The only way to regain this market is to promote the durability of our product." Elmer R. Stafford, Jr., Comptroller, New England Brass Co., Taunton, Mass.

"The troubles that have beset American industry price-wise are a direct result of the importing of cheap foreign products. Our com-



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Copper and Brass Rolling, continued

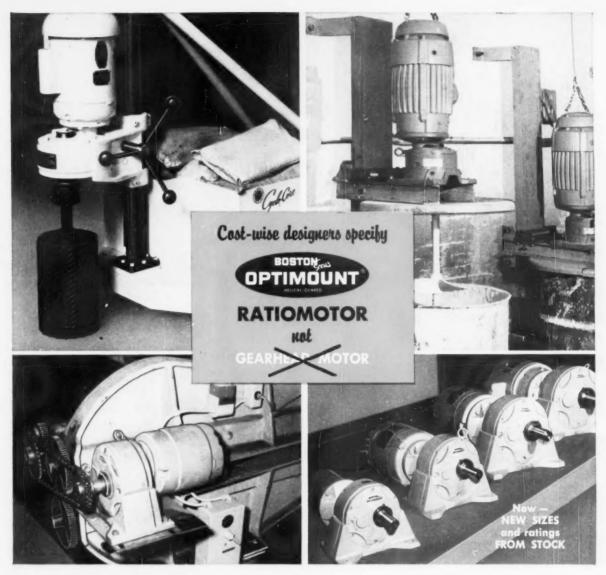
pany has made a real effort to bring prices somewhere near those charged by our foreign competition. Obviously, profits have dwindled considerably.

"If our efforts to meet competition could be considered successful, we would certainly feel that our efforts were not in vain. On the contrary, foreign products are appearing in increased quantities and at prices far below what we are economically able to meet. If relief from this scourge is not forthcoming. American industry will find it necessary to do one of two things: Either transfer operations to foreign soil such as has already happened in many segments of our industry, or deteriorate to the point where a national emergency would find us at such a low level that it would take months to get back into full production." Joseph F. Murray, Vice President. Reading Tube Corp., New York, N. Y.

"The biggest factor in the squeeze of profit margins is price cutting. This is due in part to foreign competition and to over capacity in a declining market. Brass rolling mills must get into other metals or new processes in order to survive." G. T. Hubbell, President, Seymour Manufacturing Co., Seymour, Conn.



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NEARBY BOSTON







Costs Will Climb, Prices Drop

Higher costs will plague the electric motor industry this year. But sales might go up slightly.

However, the industry expects profits and prices to fall. Price cutting and over-capacity are blamed for less profits.

 Plagued by higher costs, the electric motor industry hesitantly says that 1961 sales might go up. Profits and prices, however, will go down.

The IRON AGE recently surveved all plants in this industry that employ at least 50 production workers. Replies represent 31 pct of the employment in this group.

Only 44 pct of the respondents say sales will increase this year. The other 56 pct say the sales will remain stationary or decrease. On the other hand, a strong 75 pct look for profits to dwindle, or, at best, hold their own.

Prices Going Down-Contrary to many industries, manufacturers of electric motors say prices won't go up this year. Thirty-nine pct of those responding say they will drop, while another 39 pct look for prices to remain level.

But the cost problem isn't contrary to other industries. Eightyfour pct report an expected increase in labor costs and 55 pct say the price of materials is climbing.

A squeeze on profit margins within this industry is blamed pri-

Labor, Material Costs Squeeze Profit Margins



In Pct Reporting UP or DOWN == Pct Reporting No Change

SIC 3621

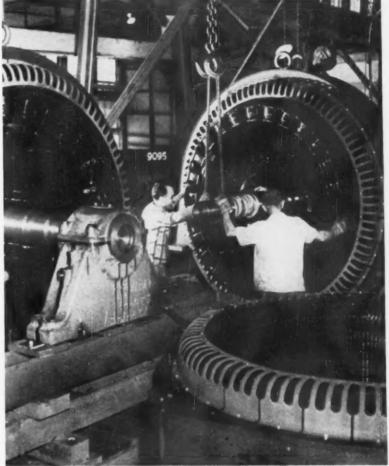
marily on price cutting. And over capacity is blamed for the price cutting. Most manufacturers say it is a cycle that can't be stopped until producers find a way to reduce fixed costs. This, they say, doesn't seem likely in 1961.

Profits Drop—Among the reasons for a general profit drop within the electric motor industry in 1960 were increased foreign competition coupled with a lack of domestic demand.

Statistics indicate, for example, the Japanese sold approximately 300,000 toy motors to U. S. buyers in May and another 250,000 rotisserie motors in October. Producers here say these motors are shipped into the United States and sold for less than American manufacturers can buy the material.

What's In The Future—The industry doesn't plan any drastic changes in products or marketing this year. Suppliers are again expected to stress the combining of electric products with driven equipment rather than just the sale of motors.

This industry is also pretty much tied to capital spending. And 1961 should be a better year in this respect than election-torn 1960. In



Westinghouse Electric Corp.

What Industry Executives Say

fact, there are indications 1961 might find greater capital appropriations being promoted by industry in general.

Most price cutting in 1960 came in the category of large motors—those with more than 500 hp. This trend is again expected this year. However, sales are expected to be predominantly on the increase among larger motors too.

Contrary to 1960, executives look for this year to start slowly and gain momentum. Last year's real activity came in the first half and slowed to a near halt by the fourth quarter. "Price cutting is the real reason we're having a profit squeeze. The cause of this is great over capacity in the electrical machinery business and the apparent unwillingness of manufacturers to reduce fixed costs to reflect realistic market and individual enterprise potentials." G. J. Berry, President, Electric Products Co., Cleveland, O.

"Increasing labor costs, both directly and through fringe benefits, is largely responsible for our present Continued

SIC 3621
Percent of Replies by Plant Size:

	Total	Replies	
Plant Size, No. of Workers	Plants by Size		Group Size
50 to 99	23 Pet	19	Pct
100 to 499	50 Pct	50	Pct
500 and over	27 Pct	31	Pct

profit squeeze. Also, there has been a decided shift in the types of goods purchased by the government as the result of technological advances in the aircraft industry. Some of these costs could be minimized if more capital were available to modernize production equipment. My main suggestion for reversing the trend is increased selling efforts to match the increased volume of production

and to help compensate for additional cost burdens." A. S. Webeck, President, **Eicor, Inc.**, Oglesby, Ill.

"If material costs can be held down so that we can buy our materials at the same cost as foreign competition, then we do not fear the economic invasion of foreign competition as much as do some of our domestic competitors. We feel that the situation is serious, however, as most of our large material suppliers are constantly submitting to union pressure to raise labor rates. They fail to absorb this within their organization, but pass it on to the users. If this trend continues, they will price all small businesses out of the market." D. R. Wiggins, Secretary and Treasurer, Consumer Industrial Products, Inc., Akron, O.

"There are too many in management who are not managing. There are too any in research who are not thinking. There are too many in sales who are not selling. And there are too many supervisors who do not supervise. Let us put our own house in order and then we can blame the other fellow." R. B. Lamkin, President, Chandeyson Electric Co., St. Louis, Mo.

"Our profits are squeezed because of price cutting resulting from more productive capacity than sales. I feel 90 pct of all American manufacturers fail to realize the tremendous potential in export sales. If they would make the same proportionate expenditures of effort and money in developing export outlets as they do in domestic business, they would be amazed at the worthwhile results. It is a business which can be very profitable and, at the same time, level out the peaks and valleys of our own fluctuating business cycles." E. A. McCardell. President, Win Power Manufacturing Co., E. Newton, Ia.

"We feel that our principal competition comes from domestic sources, and that profit margins are being squeezed by lower selling prices because of over capacity within the industry. Further decline in prices will result in additional red ink which is already showing in our industry. We hope that our material costs will become lower to help meet price reductions. Since materials are a very high percentage of our costs, additional costreductions are limited unless we get more help from our suppliers." W. M. Trigg, Manager, Motor & Gearing Dept., Buffalo Div., Westinghouse Electric Corp., Buffalo, N. Y.



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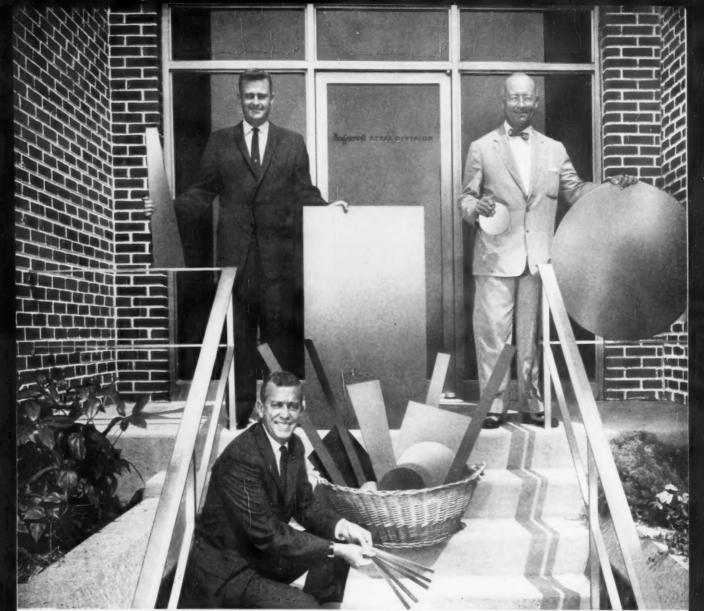
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Bottom: R. W. Leigh, Vice President-Sales; top, I. to r.: R. H. Ingersoll, Steel Sales Engineer; G. M. Poole, Chief Metallurgist

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Profit Potential Is Doubtful

An IRON AGE survey reveals that many producers of electric controls and switchgear look for profits to increase.

However, more see a decrease. Increased labor and material costs are getting the blame.

 Producers of electric controls and switchgear vary on the question of profits during 1961.

An IRON AGE survey reveals that 40 pct of the respondents think profits will go up. However, 45 pct look for a drop and 15 pct say that profits will remain the same.

The survey covered all plants in this industry that employ at least 50 production workers. Replies represent 37 pct of the employment in this group.

Sales Will Increase-The indus-

try expects sales to definitely increase this year. Fifty-nine pct of those responding to the survey look for sales to climb. Only 12 pct say they will decrease. The selling price, many note, will probably remain at present levels.

The situation of increased sales and slackening profits points to increased labor and material costs. In fact, 90 pct say labor wages will

Which Way for Profits in 1961?



In Pct Reporting UP or DOWN



SIC 3613 & 3622

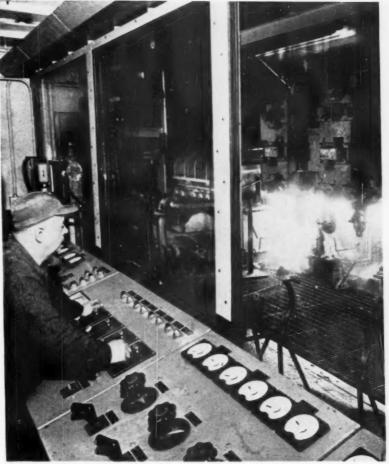
rise this year. Fifty-two pct say the cost of materials will be going up and only 3 pct say this cost will drop.

The comparatively young industry expects to continue to expand at a rapid pace. Yet it looks for even tougher competition this year. As in other industries, manufacturers say the greatest competition will come from overseas.

Full-Line Competitors — Then too, some producers say that mergers and acquisitions have resulted in full-line competitors. They claim independent companies are pressing a "break-even" philosophy that leads to direct price cutting. This, they say, can only be halted if these divisions begin thinking more about profits.

The industry also blames over capacity for the present squeeze on profit margins. It claims the volume of business available doesn't warrant present production levels.

And then, on top of everything else, it says, buyers have adopted the attitude that "if it's cheap enough, it's good enough." In other words, manufacturers claim the market has not become quality



Jones & Laughlin Steel Corp.

What Industry Executives Say

conscious. This is what makes foreign competition the toughest.

Continued Trends — Producers aren't expected to bring out many new products under the present industry status. However, they believe there is still a definite trend toward electronic or "static" controls. This means a move away from electro-magnets and increased use of transistors and diodes.

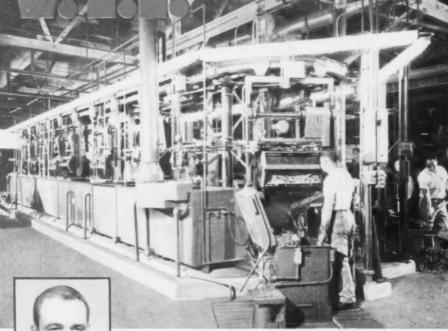
Of course, the makers of electromagnetic components look upon such talk unfavorably. "Mergers and acquisitions, resulting in 'full line' competitors, do the most to cause price depreciation. The solution to the problem is to make each division develop a profit." John M. Townsend, President, Continental Electric Equipment Co., Cincinnati.

"The small businesses could do a better job for our gross national income if we could get a better break on taxes and the modernization of production equipment." W. H. Carrigan, Vice President and

SIC 3613 & 3622 Percent of Replies by Plant Size:

	Total	Replies
Plant Size, No. of Workers	Plants by Size	from Group by Size
50 to 99	28 Pct	26 Pct
100 to 499	55 Pct	53 Pct
500 and over	17 Pct	21 Pct

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Electrical Controls, continued

General Manager, Kirkhoff Manufacturing Co., Grand Rapids.

"The biggest reason for profit squeezes is cost cutting. This stems from overcapacity and limited demand. The threat of additional foreign competition will prevent prices from rising unless there are some unusual developments. Price leadership, exercised by one or more of the major producers, would tend to stabilize the market for switchgear and power circuit breakers. They must set the example, however, and be willing to tolerate a fair proportion of the available business going to smaller competitors." John M. Hottenstein, Division Manager, ITE Circuit Breaker Co., Los Angeles.

"Basic over capacity within the industry for the amount of business available is chiefly responsible for the present profit squeeze." W. B. Mann, President, Wolfe & Mann Manufacturing Co., Baltimore.

"The curse of our industry is price cutting. All I know to try is to continue developing new and better engineered products and sell them on their merits rather than just price. The electrical industry looks too much at price and not enough at value. What is cheap?" P. W. Reed, President, Monarch Electric Corp., Jamestown, N. Y.

"Much modernizing of products, production and thinking is needed. Price cutting by the big companies seems terrific. We'll know more later." G. J. Hales, President, Leonard Electric Manufacturing Co., Cleveland.

"Profit margins have been narrowed primarily because of intense price competition. This fact, coupled with the rising costs of labor and materials, cuts heavily into profits. Greater volume could withstand the price-cost squeeze by cutting fixed unit costs. However, demand has been generally soft in the industry and volume has been

static or depressed." Thomas Morgan, Assistant Secretary, International Register Co., Chicago.

"A great many people got into the control and relay business on military orders and are now trying to stay in the business on commercial work and/or a reduced volume of military requirements. Many of them did not, and do not now, have an adequate sales and distribution system. Their main recourse is price cutting." John J. Rowell, Vice President, Guardian Electric Manufacturing Co., Chicago.

"Price cutting and labor costs are our most difficult problems. Unless our competitors realize that price cutting is harmful to all, I don't see what can be done to change the current situation. To a large extent, price cutting is due to over capacity and only a boom would take up the slack. There is little indication of that." Arthur A. Berard, President, Ward Leonard Electric Co., Mt. Vernon, N. Y.



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R-359-136B

Manufacturers Lack Optimism

This isn't a promising year profit wise—for the fastener industry. At least that's what an IRON AGE survey reveals.

Sales will go up, but profits are expected to decline.

• The fastener industry is far from optimistic this year.

A recent IRON AGE survey reveals the 1961 pattern for the industry: Sales will probably increase, the selling price should remain the same, labor costs will rise, the cost of materials will remain stationary or increase slightly, and profits will shrink.

The survey covered all plants in this industry that employ at least 50 production workers. Replies represent 49 pct of the employment in this group. The Sales Picture—A total of 48 pct of the survey's respondents say sales will be higher this year. Twenty-four pct expect them to drop and 28 pct say there will be no change. There is quite a bit of disagreement on the predictions for the selling price of equipment in 1961. Most producers, 44 pct, say there will be no change in prices this year. Yet, 31 pct look for

Here's the Story of Shrinking Profits



In Pct Reporting UP or DOWN

= Pct Reporting No Change

SIC 3452

prices to go lower; 25 pct say they will rise.

Fastener makers fully expect the squeeze on profit margins to become even tighter before this year is out. Ninety pct of those answering the survey feel the cost of labor will rise. However, while most industries look for considerable jumps in material costs, fastener producers say there should be no change in this area.

At least that's the opinion of 60 pct. Yet 59 pct expect increases in material costs. Only 1 pct look for this price to fall.

Profits Down—Bearing this in mind, 55 pct of the manufacturers note 1961 profits will decline. Eighteen pct look for no change and 27 pct feel profits may rise this year.

Many producers express the opinion that price cutting is the primary reason for the decline in profits.

But, others say, foreign competition has brought over capacity into focus and this is definitely a cause. Of course, many factors such as



Industrial Fasteners Institute

What Industry Executives Say

foreign competition and increased production costs are actually responsible for the price cutting. The industry is planning an all-out campaign this year for short-term tariff protection.

At the beginning of 1960, producers looked for profits to rise. However, the effect of imports was underestimated and the year didn't turn out nearly as well as expected. Now the industry is bracing itself for another year of tough "outside" competition.

"Price cutting is as bad as I've seen it in the past 20 years. In a market where low prices will not increase the total consumption of a product, it is foolish to try and get more than your share of the business. Nobody has a monopoly on the low price." H. Thomas Hallowell, Jr., President, Standard Pressed Steel Co., Jenkintown, Pa.

"Stagnation plays a major role in the squeeze on profit margins in this industry. Reversing the trend demands a dispassionate evaluation Continued

SIC 3452 Percent of Replies by Plant Size:

	Total	Replies
Plant Size,	Plants	from Group
No. of Workers	by Size	by Size
50 to 99	40 Pct	36 Pct
100 to 249	34 Pct	39 Pct
250 and over	26 Pct	25 Pct



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Fasteners, continued

of each company's shortcomings to establish a realistic company purpose." James E. Jolliff, Controller, Judson L. Thomson Co., Waltham, Mass.

"The item most responsible for the squeeze on profit margins has been a steady increase in labor costs. Like many others in our industry, we have been affected by foreign competition and price cutting from our fringe competitors. However, labor costs represent the greatest problem. And we do not anticipate any change in the labor climate for at least the next four years." Raymond F. Duffey, Vice President Sales, Tubular Rivet and Stud Co., Wollaston, Mass.

"Conditions can scarcely get worse in this industry, and the industry is too basic to disappear. Price cutting is the worst single factor in the fastener industry and foreign competition has a bearing on this element. Labor costs are also a serious problem, but must be lived with and can be controlled to a considerable degree by mechanization. Of course, it is this same mechanization which has produced over capacity which, in turn, is the most important reason for price cutting." Herbert E. Smith, Jr., President, Vulcan Rivet & Bolt Corp., Birmingham, Ala.

"We feel that the greatest cause of reduced profits in our industry is the price cutting by manufacturers who are not living up to specifications. This has created considerable trouble in the aircraft and missile industry because it has affected reliability. Indications are, however, that the industry is policing itself. We feel there is a possibility of a trend reversal in the year to come." K. R. Brooks, Vice President, Screw Corp. of California, City of Industry, Calif.

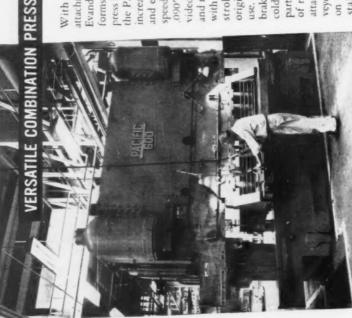
"A quota should be placed on imports." B. J. Sachbein, President, Hercules Fastener Corp., Chicago.



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Over 9 out of every 10 hydraulic press brakes in operation today are PACIFIC providing...

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veyor table operating on trolley tracks stallation and removal of shearing on floor is contemplated for rapid inof ram permits forming while shearing attachment is in place. Jack-type conuse. Operating half the time as a press parts for jet engines. Horn on left end stroke, attachment is still cutting on brake, the PACIFIC forms mild and cold rolled steel, stainless and inconel speed cutting. Accuracy of .060" to vided in cutting 3/8" to 3/4" stainless and mild steel up to 1" thick. Shearing original knife edge after 6 months of 090" over 6 feet of shear length is prowith a cushioned, shockless hydraulic press brake. In cutting 1/2" to 1" plate, the PACIFIC minimizes slow burning, increases shearing capacity of the plant and equals conventional shears in high With the unique PACIFIC shearing forms sheet metal parts on its PACIFIC Evandale, Ohio, shears heavy plate and attachment, General Electric Company, ION PRESS BRAKE AND SHEAR

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- Precision depth control to repeat accuracy within .001" (1951)
 Manual turret stroke controls for
 - Manual furer strong (1952) progressive bending (1952)

 Selective anti-whip speeds to eliminate reverse bends (1952)
- eliminate reverse behas 1302.

 Tandem operation of press brakes for forming pieces 40 ft. or longer.
- Tonnage control to protect light dies in heavy press (1953)
- Multiple hydraulic cushion cylinders for deep drawing (1954)
 - Overhead integral power unit for increased accuracy (1955)
- Cylinder ram guides for increased rigidity (1956)
- Shearing attachment for shearing heavy plate on press brake (1958)
 - Pipeless stacking of valves to eliminate pipe breakage and leakage (1959)
- leakage (1959)

 Shockless hydraulic valving to eliminate cause of leakage (1959)

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THE IRON AGE, January 5, 1961

"We suggest that some of the larger producers raise prices and ignore foreign competition. The ability to render service and quick deliveries should offset foreign competition." P. Champion, President, Champion Rivet Co., Cleveland.

"Imports are killing us. I propose that we put closer and more stringent controls on tariffs." R. C. Sellin, Vice President & Treasurer, Midland Screw Corp., Chicago.

"Price cutting to meet real or imagined foreign competition, plus some panicky sales management have caused many prices to fall below foreign competition. The outlook for fastener manufacturers is far from encouraging." John A. MacLean, Jr., President, MacLean-Fogg Lock Nut Co., Chicago.

"Demoralization of the scrap market is the principal cause of the squeeze on profit margins. Mills must adopt a pricing policy for washer stock which rises and falls with the scrap market. Constant increase in labor cost and taxes, and the unrealistic depreciation allowances on capital equipment are also factors." Lawson Adams, Executive Vice President, Wrought Washer Manufacturing Co., Milwaukee.

"I believe foreign competition to be the major cause of our inability to show sufficient profits and modernize production. Governmental help is not forthcoming and not desirous. The best way to combat imports is to wage a vigorous campaign to 'buy American.' "Otto G. Lobatz, Vice President, Revere Screw & Rivet Corp., Chicago.

"Price cutting due to over capacity and foreign competition, labor costs, and the inability to modernize production equipment because of high taxes and unrealistic depreciation laws are the reasons for a squeeze on profit margins." R. E. Nelson, Controller, Central Screw Co., Chicago.



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Slump Hits Gray Iron Founders

Price cutting and spiraling labor costs carry into new year. Little relief is expected by industry.

Most executives feel that only a turn in general business will help.

• The past year was one of intense competition and widespread price cutting in the gray iron foundry business. Little relief from this situation is expected by industry men in 1961.

Almost six out of ten industry men surveyed by The IRON AGE expect sales this year to be the same or lower than in 1960. Seven out of ten say selling prices will be the same or lower than last year. And a whopping 85 pct of these men say wages will go higher. Most predict higher material costs.

Tough Cycle — The situation in the industry is one that compounds

itself. Wages and material costs exert stiff upward pressures but prices are pegged by a buyers' market and by imports. What is needed is greater shop mechanization. But depreciation taxes and lowered profits rob companies of the money to buy new equipment. There will be tough sledding in 1961, particularly for the smaller companies.

Many industry men see no end to price cutting until business makes

In View: Costs Up, Sales and Profits Static

Profits Prices Sales Wages Materials

52

Materials

In Pct Reporting UP or DOWN

= Pct Reporting No Change

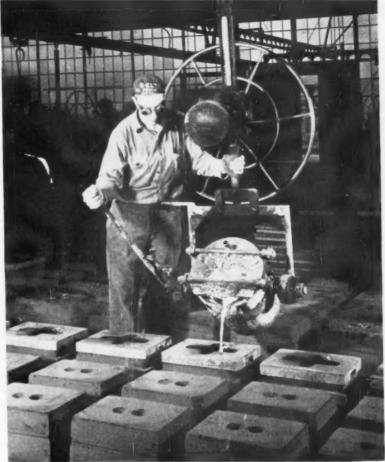
SIC 332

a turn for the better. Industry veterans say price cutting has been an off-and-on occurrence in the business for more than fifty years. They say that when business is slow, price cutting starts, and doesn't stop until business is good again.

High Wage Costs — Spiraling wage costs have had a particularly crippling effect on founders. One industry spokesman claims that total labor costs run close to 45 pct of sales.

The effect of labor cost increases is especially tough on the many small founders that make up the bulk of the industry. Heads of small companies point out that when faced with labor demands, the small company is always required to meet a so-called national pattern. And this pattern is based on how big companies have settled.

Mechanization — Foundry men claim that mechanization is one answer to rising labor costs. But they feel they will be strapped in doing much about this in 1961. Little in profits has been brought into the new year from the old. Most founders feel that deprecia-



Gray Iron Founders Society, Inc.

What Industry Executives Say

tion taxes are not realistic, especially in the face of increasing foreign competition.

Another area of competition that is expected to stiffen further in 1961 is that from alternate materials. Founders must find ways to compete aggressively with steel, plastics, and aluminum, particularly.

Bright Note—One founder who is looking to increased sales and profits in 1961 is meeting foreign competition head-on. This foundry has 167 foreign foundry licensees.

"Most of our troubles are due to poor overall business conditions. Also, inroads have been made by substitutions of other materials for gray iron castings—fabrications in steel, plastics, and aluminum." H. L. DeSantis, Secretary, Ace Foundry, Ltd., Huntington Park, Calif.

"Price cutting is at the heart of our industry trouble. This has been the history of the foundry business for fifty years. This I know from actual experience. When business is down, price cutting starts and Continued

Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size	
100 to 249	68 Pct	60 Pct	
250 and over	32 Pct	40 Pct	

THE IRON AGE, January 5, 1961

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In engineering service and delivery from the manufacturer

Each dollar invested in Acme Chain buys the highest quality product that experience, material, design, craftsmanship and facilities can produce at competitive prices. But your dollar value doesn't end here. Acme has built



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RELIABLE CHAIN DRIVES FOR ALL INDUSTRIES

POLLER CHAINS, SPROCKETS, CONVEYOR CHAINS, FLEXIBLE COUPLINGS. ATTACHMENTS. (Special and Standard)

Gray Iron Foundries, continued

doesn't stop until business is good again." M. B. McKee, President, Gartland Haswell Foundry Co., Sidney, O.

"Foundry industry profits have been poor for some time, but 1958-60 was really adverse. This was primarily due to increased competition, not only in the industry, but with competing materials. The industry's inability to modernize equipment has been a severe handicap." R. S. Thompson, President, H. P. Deuscher Co., Hamilton, O.

"We have no fear of foreign rough-casting competition. We have 167 foreign foundry licensees. The answer to profits is: Quality products, good merchandising, and materials handling through mechanization to reduce labor costs." H. H. Kessler, President, Sorbo-Cast Corp., New Brunswick, N. J.

"Taxes are absorbing too much of our earnings. This reduces funds available for modernization." J. D. Capron, President, Glamorgan Pipe Foundry Co., Lynchburg, Va.

"The foundry industry has been especially hard hit by wage increases. In the foundry group you will find that the total labor cost runs close to 45 pct of the sales dollar. This makes spiraling labor costs a more important element in this business than in many others." L. N. Essex, President, Golden Foundry Co., Inc., Columbus, Ind.

"The most important causes of the conditions in the foundry industry today are price cutting, taxes, and constantly increasing labor costs. We believe the corporate tax rate structure should be placed on a minimum of four staggered bases -10 pct on the first \$25,000; 20 pct on the next \$50,000; 30 pct on the next \$100,000; and 50 pct on all above. The reason for this is that the small company cannot accumulate earnings after taxes in order to buy the necessary equipment to keep pace with competition, or to expand. We also believe there must be closer control of the demands of labor unions." J. E. Britton, President, Urick Foundry Co., Eric, Pa.

"We are concerned with the flood of machinery, electrical motors, cars and other finished metal goods produced at \$.55 to \$1.08 per hour labor rate versus our much higher rates." L. M. Currie, Vice President, H. C. MacCaulay Foundry Co., Berkeley, Calif.

"Increased labor costs are not only affecting our own operations, but also the products of our suppliers. This, in turn, is putting our product at a distinct disadvantage in relation to foreign competition. We must find means of educating our labor and show them the pitfalls of their inflationary ways. It is our only means of regaining our share of the market." H. J. Sprecken, Jr., President, Sturgis Foundry Corp., Sturgis, Mich.

"A 'Buy American' campaign already started by the government would certainly help in our present situation. Tariff help seems impossible, but quotas on all metals, and especially metalworking machinery, are vital. As for price cutting, it will not change as long as we have 40 pct idle capacity in our industry. Until a national pattern of 'hold the line' can be adopted, the small manufacturer is helpless to resist the trend." W. Z. Taylor, President, Taylor & Co., Inc., Brooklyn, N. Y.



"Lunch hour or not, stop that clowning.

TOUGH DIET FOR TIN PLATE

Canned fruit salads may be easy on fashion-trim figures but they're murder on containers. To withstand biting food acids, the tin plate must be securely bonded to the steel . . . a trick that calls for thorough cleaning of the steel before plating. One of the latest Pennsalt cleaners does the job in superior fashion. In fact, nine out of ten cans produced today get their start with Pennsalt tin mill cleaners.

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Heat Treat Market Is Slow

Profit squeeze is felt by heat treating equipment men. No relief is expected in 1961 unless general business turns for the better.

Sales are forecast to go up, but so are costs.

 Heat treating equipment makers differ widely on the 1961 outlook for sales, profits and selling prices.
 But they are in almost total agreement on the direction of labor and material costs—up.

This is the principal conclusion of The IRON AGE survey of heat treating equipment makers. The survey covered all plants in the industry that employ at least 50 production workers. Replies represented 56 pct of the employment in this group.

Customers Squeezed — Industry executives cite the squeeze of increased costs and an inability to

pass on these costs. Customers of the industry are in the same boat and cannot accept higher prices. This situation has resulted in a profit squeeze.

And it looks as though the profit squeeze will extend into 1961. More than 60 pct of the executives surveyed expect sales to be higher in 1961. But more than 60 pct also believe selling prices will be the same or lower in the new year.

Any relief that may be expected from increased sales seems further

Few Expect Profit Improvement in 1961



doomed when the cost picture is viewed. About nine out of ten heat treating equipment men expect wages and material costs to rise in 1961.

Engineering Costs—Other costs are up, and will probably go higher. One executive surveyed pointed out that direct engineering costs rose about 10 pct in 1960 over the previous year.

In the face of competitive industry conditions in 1960, few charges of price cutting have been sounded by surveyed executives. Idle capacity and rising costs have caused undeniable scrambling for orders. But price wars, as such, seem minimal. There is no sign that price cutting will be any more severe in the new year.

Describing what is wrong is easier than finding a solution. So it is that heat treating equipment men are articulate on industry troubles but hesitant, unsure, or even skeptical about solutions.

Solutions—Here are some of the areas of solutions mentioned by equipment makers: Increased research, new products, automation, diversification, and closer cost analysis.

In a practical sense, many of



Leeds & Northrup Co.

What Industry Executives Say

these solutions are known but not fully pursued. The profit squeeze has left capital funds in short supply.

Equipment makers are watching 1961 for a turn for the better in general business. If the mid-year upturn so freely predicted by economists does not come off, then equipment makers may face a period even tougher than in 1960. They enter the year with no cushion and little reserves.

"I don't think there is anything wrong with profit margins that good common sense won't cure. Common sense and the right attitude help us. We don't cut prices. If others do, making a profit is their problem, not ours. As far as taxes go, they will always be with us. If they are considered the same as other costs, they can be tolerated. Foreign competition is not a problem to us. And as far as modernization goes, this is chiefly a money matter. This has not been an insurmountable prob-

Continued

Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size	
50 to 99	56 Pct	64 Pct	
100 and over	44 Pct	36 Pct	

Heat Treating Equipment, continued

lem for any successful, profitable company." T. H. Wickwire, III, President, **Trent, Inc.**, Philadelphia, Pa.

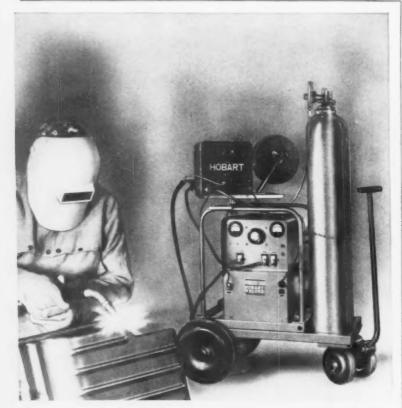
"The squeeze on profits seems to be getting worse. This seems to stem from the fact that there is considerably more productive capacity than sales. This has been true for the past few years. And with this is a general problem: Prices have softened. Therefore, we have not been able to pass on increased labor costs. We are licking this by diversification and new products. Because of this, we will sell more in 1961, and make more money, but with a different product mix." W. E. Sauter, General Manager, C. I. Hayes, Inc., Cranston, R. 1.

"Actually, several factors combine to effect the tight squeeze on profit margins in the special heat processing equipment field. Needed modernization is held up because of our customers' competitive position with regard to price cutting, taxes, labor costs and foreign competition. This reflects a similar image in the 'tight' original equipment field sales." B. A. Russell, President, Drying Systems, Inc., Chicago, Ill.

"The best way to reverse the profit squeeze trend in this industry lies in research toward more efficient, higher production equipment." C. F. Olmstead, President & Treasurer, Lee Wilson Engineering Co., Cleveland, O.

"The trouble in our industry? Price cutting or lack of knowledge of what actual costs are so that sales prices are totally unrealistic. The cure? I wish I knew." C. B. Kentnor, Jr., President, W. S. Rockwell Co., Fairfield, Conn.

"Important causes of the profit squeeze in this industry are as follows: Direct engineering costs are up about 10 pct over 1959. Direct labor costs are up approximately 4 to 5 pct. And material costs are up about 3 to 4 pct on the average. We are a small company, and working capital problems prevent us from buying all the desired equipment for more efficient operations." C. R. Chambers, General Manager, Vacuum Furnace Div., Concord, N. H.



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Industrial Truck Prices Soft

Most industry executives think sales will rise, or at least hold own, in 1961. But more price cutting may keep profits at 1960

Standard lines are hardest hit by price slashes.

 Industry executives expect sales to stay at 1960 levels or better during the new year. Most think profits will be lower or about the same as last year. One-third feel selling prices will run above last year, but half feel there will be no changes in these prices.

Some 56 pct of industry executives surveyed by The IRON AGE think material costs will be higher this year. And 44 pct think there will be no change. In wages, 88 pct feel these will go up further in 1961.

These are some of the views unfolded in IRON AGE's annual survey of metalworking executives. In the portion of the survey on industrial truck makers, all plants that employ at least 50 production workers were covered. Replies represent 63 pct of the employment in this group.

Price Cutting-Price cutting was scored heavily by industry executives as a cause of the present tight profit margins. Next in rank came high labor costs.

Most of the price cutting was centered in the traditional equip-

Profit Outlook Bleak for Industrial Trucks

Profits Prices Sales Wages **Materials** 50 44



SIC 3537

ment lines. Cost cutting was still apparent in the custom fabrication lines as a part of the "get the order at any price" thinking of some equipment makers, according to some executives.

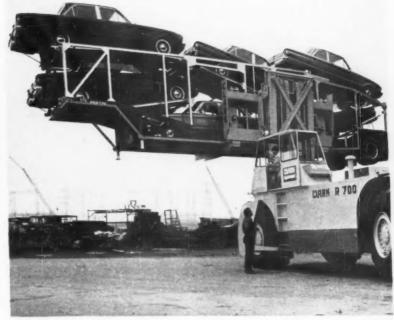
A number of industry men claim that lower prices don't necessarily win customers. They say that the customer who looks for a cut price must "pay for his price in future service."

No End Seen—No predictions were chanced on just when price cutting would subside. One executive said it would stop only when companies lose enough money to force them to give up the practice.

Truck makers were finding price relief in 1960 only on custom lines. Advances in prices in standard lines were impossible due to competitive pressures.

Domestic competition was in the spotlight in the industrial truck industry in 1960. Foreign competition, so far, has caused little alarm. It is expected this general situation will carry forward into this year.

Few Solutions—Not many solutions to the situation in the truck industry were offered in the survey. Like executives in other industries,



Clark Equipment Co

What Industry Executives Say

most were looking for the turn in general business conditions. Only a larger, more active market would seem to be able to stop price cutting and spread out the labor cost burden over greater sales at higher prices.

A number of manufacturers are giving attention to development of new products. But some effort along these lines is specifically directed at competition with similar foreign lines. Quality and reliability factors continue to receive careful attention from truck makers, also.

"Price cutting is by far the greatest problem in our industry. The only cure is for companies to lose so much money that they are forced to abandon the effort to get all the business. They then would make a reasonable profit on what they can get legitimately." E. G. Swigert, President, The Hyster Co., Portland, Ore.

"Price cutting, taxes and labor costs are the cause of our troubles. The only answer is to effect an improvement in each." A. L. Lewis,

Continued

SIC 3537
Percent of Replies by Plant Size:

	Total	Replies	
Plant Size, No. of Workers	Plants by Size	by Size	
50 to 99	29 Pct	11 Pct	
100 to 249	39 Pct	33 Pct	
250 and over	32 Pct	56 Pct	



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Industrial Trucks, continued

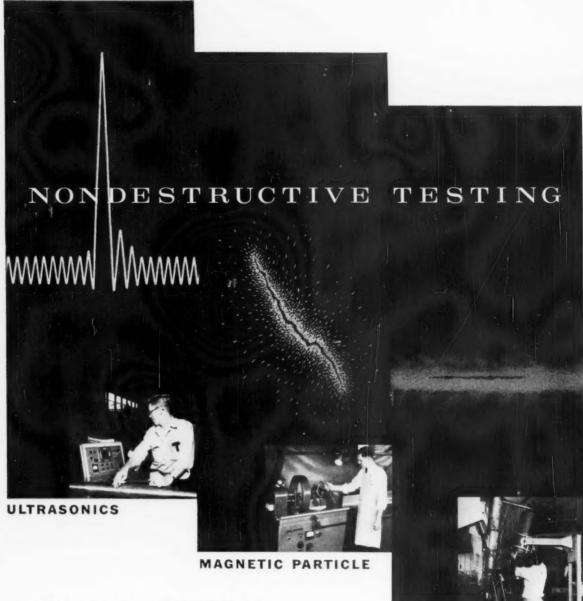
President, Lewis-Shepard Co., Watertown, Mass.

"We are hit by a combination of price cutting and higher labor costs. The best cure is to stop price cutting. It does not increase business for anyone and eventually hurts the customer as well as the manufacturer. The customer must pay for his price in future service." G. Raymond, Jr., President, The Raymond Corp., Greene, N. Y.

"The principal cause of tight profit margin is price cutting on 'traditional' equipment which leads to a scared attitude on custom fabricated items. Also, there is the debilating sales policy of 'take an order at any price.' A suggestion to reverse this trend: Dynamic sales attitudes are never out of style. This, coupled with capable management, is a hard team to beat." J. A. Clark, President, St. John & Co., Chicago, Ill.

"Labor costs are the big reason for declining profit margins—and foreign competition in some of our items. We are combating this problem by designing new products capable, in quality and performance, of competing with these foreign lines. Price advances under present conditions are not possible except on the special custom built equipment which we make." A. H. Klumb, President & General Manager, West Bend Equipment Corp., West Bend, Wis.





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enabled him to efficiently compete for orders in

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fields demanding the utmost in quality and reliability.

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Instrument Sales Increase Due

The outlook for measuring and control instruments is mixed. Sales are expected to increase, but profits look to be static.

High labor costs and imports concern industry executives.

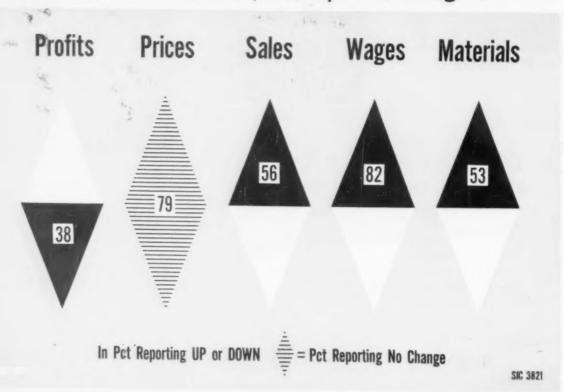
• The 1961 outlook for measuring and control instruments is slightly "bullish" on sales. But the outlook on profits is on the "bearish" side. The reason for this is because selling prices in 1961 are expected to be the same or lower by most industry executives. At the same time, wages and material costs are expected to go up this year.

Most executives blame price cutting competition and high labor costs for the present state of business in the industry.

Broad Survey—These are points brought out in The IRON AGE annual survey of the metalworking field. The survey covered all plants in the measuring and control instruments industry that employ at least 50 production workers. Replies represent 26 pct of the employment in this group.

Some of the executives surveyed feel that high labor costs have opened the door to foreign competition which is now growing. Others believe that indiscriminate price cutting has opened the door to imports.

Mixed Views are Held, Except on Wages



At any rate, foreign competition is expected to become a greater factor in 1961.

New Equipment—A second effect of price cutting and high labor costs, according to a number of executives, has been an inability and failure to modernize production equipment. This lag has further handicapped domestic producers in competing with foreign instrument makers. It is understood that foreign tax write-off laws are more liberal than in this country.

Some executives feel that the industry will find a way to acquire newer equipment in the new year. They base this on necessity to compete with increased domestic and import competition. The increased cash flow due to expected increased sales is regarded as the clue to funds for equipment acquisition.

Also, lower interest rates may up borrowing to buy equipment. Almost six out of ten industry executives expect sales to increase in 1961. Another one out of three expect no change in sales.

Wages Up—In the matter of expected pattern of wages there is little disagreement among industry executives. Some 82 pct of them expect wages to go higher in 1961.



GMC Truck & Coach Div.

What Industry Executives Say

Another 18 pct predict "no change" in wage levels. None expects wages to go lower than in 1960.

In the matter of material costs, 53 pct executives replying expect costs to rise. Another 41 pct forecast no change. And 6 pct foresee lower material costs.

Practically all instrument makers will be working on the problem of increased productivity in the new year. It is not clear, and not agreed, just how this will be done. But it is listed as a "must" by the industry.

"Labor costs have invited foreign competition. Now the squeeze is developing against profits and against our ability to modernize production equipment." J. M. Biddison, Vice President & General Manager, Globe Tool & Engineering Co., Dayton, O.

"The profit squeeze is due to the competitive price situation. Our approach to this problem is to find ways to cut manufacturing costs by increased efficiency in manufactur-

Continued

SIC 3821 Percent of Replies by Plant Size:

	Total	Replies from Group	
Plant Size,	Plants		
No. of Workers	by Size	by Size	
50 to 99	30 Pct	26 Pct	
100 to 499	53 Pct	56 Pct	
500 and over	17 Pct	18 Pct	



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Instruments, continued

ing procedures. And we continually search for more productive machine tools." F. S. Lehlbach, Secretary, Trinity Equipment Co., E. Roselle Park, N. J.

"Labor costs are the prime reason for the profit squeeze in our industry. The answer is increased productivity per man." W. Calerdine, Assistant Treasurer, Sparling Products, Hersey - Sparling Meter Co., El Monte, Calif.

"Major factors in the profit squeeze are price cutting and labor costs. I believe price cutting will become less acute as companies realize honest prices must be held to operate profitably and remain in business. The wage squeeze will continue and will be offset by improved methods and labor-saving machinery." R. B. Winkler, Executive Vice President, Durant Manufacturing Co., Milwaukee, Wis.

"The reason for lower profit margins is found in the increase in labor costs. Cure: The trend can be reversed only by increasing personal individual productivity, i.e., harder work, greater skill, and more careful work to offset increased wages. I have no suggestions as to how this cure can be effected under present conditions (social, political, labor, etc)." A. C. Davis, President, Viking Instruments, Inc., Tow Nest, Conn.



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THE IRON AGE, January 5, 1961

Dunbar Brothers Division, Bristol, Conn.

F. N. Manross and Sons Division, Bristol, Conn.

Wallace Barnes Steel Division, Bristol, Conn.

Will Stampers Hold Price Line?

The contract stamping industry expects sales to climb, but profits will continue to drop.

Prices are expected to hold at present levels because of the keen competition for business.

• Contract stampers look for higher sales in 1961, but this isn't expected to halt declining profits.

Major factors working against the industry are price cutting, labor and taxes. There is little optimism that relief is forthcoming.

The Standard Industrial Classification (SIC 3461 "Metal Stampings") includes captive shops. However, The IRON AGE surveyed contract stampers only. In this way, companies where contract stamping is only a small part of the total operation are excluded.

More But Less—More than half of the stampers surveyed expect sales to go up in 1961. But only 27 pct expect profits to go up, too. A whopping 44 pct expect further declines in profits.

For one thing, the industry has excess capacity. This has caused a stiffening of competition. Consequently, many companies are using very sharp pencils when figuring bids for jobs.

This had led to widespread price cutting, considered by many to be the factor putting the greatest pressure on profits.

Profits Will Decline, Despite Higher Sales



Price Battle—Stampers point out that unrealistic pricing has forced many companies to go out of business. In the long run, they say, there will actually be less competition because there will be fewer companies to bid on jobs.

However, none is able to offer a solution. Most seem resigned to let it run its course and suggest that maybe, through too many low bids, the price-cutters will sell themselves right out of the market.

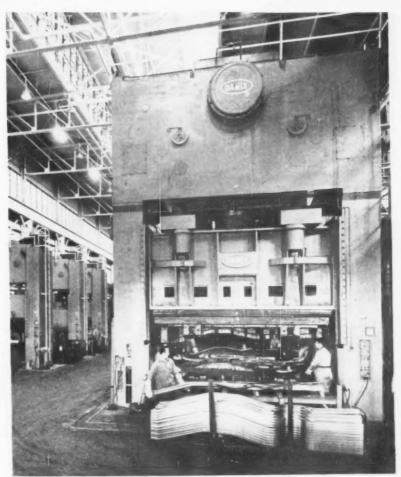
An argument raised in defense of price cutting is that fixed overhead costs are high. And low-profit or even no-profit business is better than none at all.

Costs to Climb—For these reasons, a large majority of stampers (61 pct) say that the selling price will stay the same. Only 25 pct believe selling prices will increase. Generally, these say that prices "must" go up because labor and material costs will be higher.

Some 89 pct of the stampers say wages will go up; only 11 pct report no change is expected; and none expect them to be lower. At the same time, 52 pct are hopeful that material costs will be unchanged. However, 43 pct fully expect to pay more for their materials.

	_				
SIC 3461 Percent	of	Replies	by	Plant	Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size	
50 to 99	45 Pct	31 Pct	
100 to 249	37 Pct	27 Pct	
250 to 499	11 Pct	7 Pct	
500 and over	6 Pct	35 Pct	



The Budd Co

What Industry Executives Say

Need to Modernize—Many are in agreement that cooperation from labor and government could help relieve many of these profit depressants. Higher wages should be accompanied by greater productivity from the workers. And tax reform, they say, is an absolute must if the industry is to modernize in order to offset higher costs.

Smaller, less efficient, stampers feel the need to modernize more accutely than the larger shops. The profit squeeze renders them unable to update their facilities at a time when they need it most.

"Excess capacity, leading to price cutting, is a major factor affecting metal stamping. Also, higher freight rates are shrinking the area a plant can serve. There isn't much that can be done about excess capacity. We must buy new equipment in order to keep costs in line. And this frequently adds to the capacity problem. Those considering new stamping departments can usually get very competitive prices outside—and save their investment." C. C. Higgins, President, Worcester Pressed Steel Co., Worcester.

Continued

Stampings, continued

"I have no suggestions other than to take individual action to resist taking business on an unprofitable basis. Also, there should be resisttance against increasing labor costs without a corresponding increase in production." L. E. Dail, President & General Manager, Dail Steel Products Co., Lansing, Mich.

"All items listed contribute, to some extent, to the squeeze on profits. We feel the principal cause is taxes. If we do make any profit, the government gets the cream off the top. This makes it mandatory to make twice as large a profit (if possible) in order to pay our stockholders and to replace what obsolete equipment we can. Tax revision is mandatory if we, and other businesses such as ours, are to remain in business." J. E. O'Brien, President, Banner Die Tool and Stamping Co., Columbus, O.

"Price cutting is the worst problem, followed by a lack of effort by labor." R. H. Serrick, Manager, Defiance Stamping Co., Defiance.

"In the face of rising costs, frantic price cutting (and quoting), by inefficient producers struggling to stay alive, keeps prices from adjusting upward as much as they should. In some areas it may be possible to meet this type of competition with improved operating techniques. But in most cases, this desperate price cutting hurts everyone-except, possibly, the buyer." N. R. Thal, President, Inshield Die and Stamping Co., Toledo.

"The power of labor unions to force wages and fringe benefits up without any relationship to productivity is an important factor in the continuing squeeze on profits. Outmoded depreciation laws and the government, through taxation being the equivalent to a majority stockholder in every business, are other important factors. With at least four years of pro-labor, give-away government in prospect, I see only an intensification, not a relief, of these problems." Ernest Davis, Vice President, Kickhaefer Manufacturing Co., Milwaukee.

"From the viewpoint of the operator of the small, job stamping shop, price cutting and inability to modernize production equipment seem to be the main reasons for the profit squeeze-with emphasis on modernization. The independent operator is limited in his ability to modernize tooling in the way of automation. This is because he has no control over the future of the job he produces." J. W. Robinson, Sr., President, Midwest Stamping and Manufacturing Co., Bowling Green, O.

"Lower prices for steel scrap are a major squeeze on profits." C. C. Caditz, President, Northern Metal Products Co., Franklin Park, Ill.

"Increased wages and other benefits will cause us to increase our prices." A. E. Harper, Executive Vice President, Tool Manufacturing Co., St. Louis.

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Builders Score High Wage Costs

Despite the prospect of greater sales, machine tool builders say higher prices are

Even so, the majority don't look for any improvement as far as profits are concerned.

• The machine tool industry is beset by problems on all sides: Labor costs are among the highest for any durable goods industry, and climbing; It is receiving stiff competition from foreign builders in the breadand-butter lines of standard tools. Depreciation policies discourage modernization programs both within the industry and on the part of its customers; and price cutting is rampant.

These are conclusions based on replies from machine tool executives to The IRON AGE's annual survey of plants employing 50 or more workers. This year, replies were received from plants with 67 pct of the industry's employment.

Critical Problem-The effect of labor costs on profits seems to be one of the most critical problems. The industry's products contain a high labor content-and a large portion of it is skilled labor. Many companies complain that workers lack pride of workmanship and the desire to work with efficiency. Rising wages are not accompanied by

Increased Costs Will Bring Higher Prices



In Pct Reporting UP or DOWN

SIC 3541 & 3542

a corresponding increase in productivity. And 91 pct say they expect wages to increase even higher in the coming year.

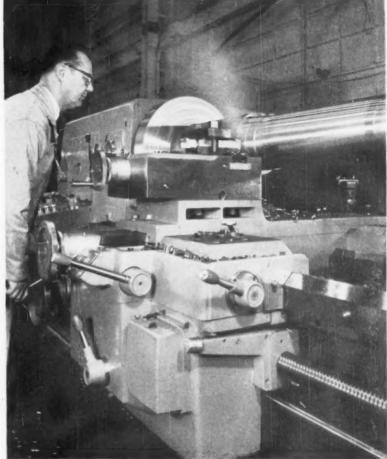
Materials used by the industry are also in the premium class—alloy and tool steels, controls, etc. Some 84 pct of those replying in the survey say they expect the cost of these items to go up in 1961; only 15 pct believe they will hold at present levels.

Higher Prices—Only a few believe price cutting will drive prices lower—3 pct. And 44 pct believe machine tool prices will remain stable. But the majority, 53 pct, predict higher prices.

And a majority, 55 pct, also predict an improvement in sales. Lower sales are expected by 22 pct, while 23 pct don't believe there will be any significant change.

Government Policies — Fewer have confidence that profits will keep pace with sales, however. Only 42 pct predict an improvement in profits. And a substantial number, 34 pct, look for a continued worsening of profits. Static profits are predicted by 24 pct.

There is a strong current of opin-



Sidney Machine Tool Co.

What Industry Executives Say

ion that the government is not helping the industry all that it should. For one thing, tool builders point out that the government continues to dispose of its surplus tools without always replacing them with more modern equipment.

Depreciation policies make it difficult for industry to modernize facilities. Continually increasing taxes also leave less and less capital for this purpose. Consequently, companies in need of new equipment must defer purchases longer than economically desirable.

"Price cutting due to lack of demand." J. R. Barefoot, President, The Federal Machine and Welding Co., Warren, O.

"Price cutting and labor costs."
C. E. Gilbert, Jr., Vice President,
The Cincinnati Gilbert Machine
Tool Co., Cincinnati.

"Tax revision, including depreciation, must come if industry is to expand. Relief on taxes would automatically help many of our industrial ills." A. V. Bodine, President, **The Bodine Corp.**, Bridge-

Continued

SIC 3541 & 3542 Percent of Replies by Plant Size:

	Total	Replies	
Plant Size, No. of Workers	Plants by Size	from Group by Size	
50 to 99	32 Pct	13 Pct	
100 to 249	42 Pct	30 Pct	
250 and over	26 Pct	57 Pct	

Machines Tools, continued

port, Conn.

"Let's halt the wage spiral." Lockwood Oliver, President, Bardons & Oliver, Inc., Cleveland.

"I am of the opinion that the art of metal removing is on the threshold of a revolution in technique. Automation was the boy five years ago, but was suited only to mass production shops. Tape control is good for lot producers with a great variety of work to be accomplished. All innovations are slow to catch on, but the pressure is so great at this time that it probably will move faster than usual.

"However, there is an ever increasing tendency for Congress and the executive administrators of our laws to place business in a strait jacket." L. W. Scott Alter, President, The American Tool Works Co., Cincinnati.

"We believe there are several reasons for the profit squeeze, and certainly price cutting, higher labor costs, and occasional foreign competition are contributing factors. Furthermore, the inability of depreciation allowances to enable companies to recover sufficient funds to invest in new and more highly productive equipment has been a factor.

"We know in our industry that we must increase productivity in order to offset labor and material costs. Inadequate depreciation allowances stifle the adoption of improved production methods that can improve the profit picture.

"Another reason for the profit squeeze results from a changing complexion of our business. A few years ago we built only one or two models of machines and could more readily tool up for maximum efficiency in production. Today's market conditions require a much wider range of machines with many different sizes and several options with regard to control systems. And it has become obvious that production efficiency is bound to suffer when dozens of different options are available.

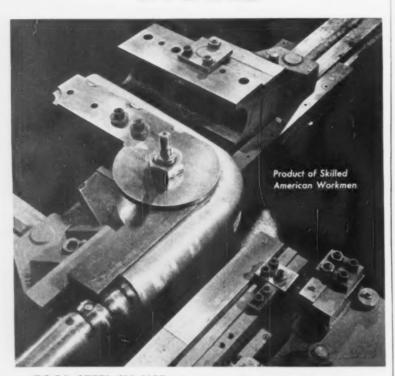
"Unfortunately, prices must remain relatively stable and cannot always reflect the additional manufacturing costs." H. A. Beyer, Vice President-Sales, **DeVlieg Machine** Co., Royal Oak, Mich.

"Because of the lack of business, industry has gone to price cutting. However, with a rise in order volume, the profit picture should improve." J. A. Hauser, Assistant to the President, Davis & Thompson Co., Milwaukee.

"We sincerely believe that profit margins will increase during 1961. Pricing is more stable and will become more so as the year progresses." T. Singelis, Vice President—Marketing Services, Clearing Machine Corp., Div. of U. S. Industries, Inc., Chicago.

"Sales expenses are higher, and the efficiency of workers is lower. To improve sales, we will concentrate more on larger companies. Our activity will be directed more to the active user. Less time will be

COLUMBIA



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spent on 'dead or doorbell-type selling." -H. V. Bailey, Sales Manager — Automatics, Greenlee Bros. & Co., Rockford, Ill.

"I don't believe price cutting has ever presented serious difficulty, but it is a factor during industry recession periods like the present. More favorable depreciation allowances would undoubtedly stimulate new equipment purchases. New developments, particularly in hydraulics and electronics, necessitate more frequent design changes. This allows a shorter period for amortizing engineering and development costs than formerly.

"In the case of machine tool builders, they too cannot use the same type of production equipment they design for their customers. Therefore, they are faced with the problem of low production quantities of goods containing a high content of highly skilled labor. Foreign competitors have the same volume and materials costs, but labor costs much less, including engineering and designing." George Gorton, President, George Gorton Machine Co., Racine, Wis.

"Labor, material costs, and foreign competition are all putting the squeeze on profit margins." E. H. Noll, Secretary, Famco Machine Co., Kenosha, Wis.

"We have, so far, been able to offset increases in labor and material by investments in more productive equipment and precision tooling. This may not continue to be as productive of cost savings in the decade ahead as in the decade just passed. We are improving our ability to compete internationally by working out agreements with companies who are in need of our products and, at the same time, we have a need for theirs.

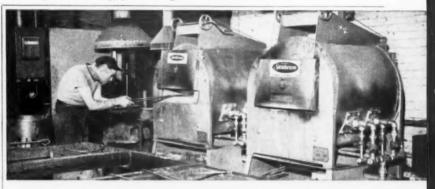
"There has been some indication of price cutting as some marginal producers struggle to retain important accounts. However, it is our feeling that price stability will be a tremendous factor in the coming months. This will prevent many of us from too easily protecting our profits through the medium of price raises." J. E. Erskine, President, Racine Hydraulics & Machinery, Inc., Racine, Wis.

"In our discussions, we have found that taxes, labor costs, and foreign competition are squeezing profits." G. A. Echardt, Sales Manager, Onsrud Machine Works, Inc., Chicago.

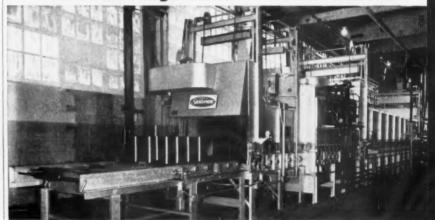
"The squeeze caused by taxes, labor costs, and inability to modernize production equipment might

be helped by: Designing for lower manufacturing cost and greater capability of the product; and encouraging replacement of shop equipment and upgrading programs." T. L. Strimple, President, The National Acme Co., Cleveland.

"Constant increases in costs which cannot be passed on." J. F. Herkenhoff, President & General Manager, The Minster Machine Co., Minster, O.



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Iron Founders See Better Year

Half of the iron founders are optimistic that sales and profits will take a turn upward.

Price competition is expected to lessen, so many believe that prices will go higher.

 Malleable iron founders look for greater sales and higher profits in the coming year, but the annual IRON AGE survey of the industry shows that the expression of optimism is not unanimous,

The survey covers all plants in the industry employing 50 or more workers. Replies represent 47 pct of the employment in this group.

Higher sales are predicted by 50 pct of those responding while 22 pct expect a sales decline. Similarly, 50 pct say they believe profits will go up with sales. However, a significant 38 pct disagree; they predict profits

will slump even further in the months ahead.

Price Pressures—Cost pressure continues to build up. Some 94 pct of the replies indicate that the industry will see wages go up. And higher material costs are expected by 53 pct; another 41 pct hopefully predict no change in material costs.

But a sales increase isn't going to offset higher wage and material costs by itself—and produce higher

Chances Are Even for a Price Increase

Profits Prices Sales Wages Materials

50
50
50
50
50
50
50
50

In Pct Reporting UP

profits. Increased demand will relieve some of the pressure to cut prices.

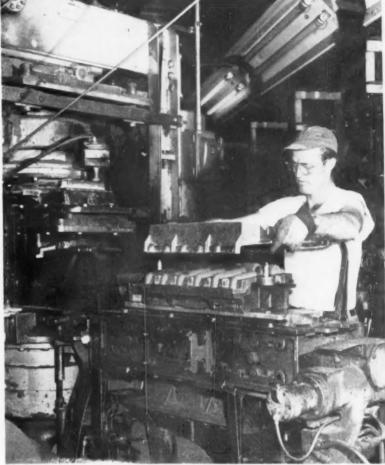
Consequently, 50 pct of the replies say selling prices will also go up as a result of the several factors working in combination. At best, 37 pct believe prices will hold steady, and 13 pct look for a continuation of price cutting.

Other Problems—Not all of the problems of the industry are due to lowered demand and higher material and labor costs.

Many executives say their companies are unable to take advantage of the technological developments in production techniques. Government depreciation policies come in for a large part of the blame, but taxation policies at both national and local levels are given part of the responsibility.

Even customers are driving up the cost of doing business. Many are reluctant to carry inventories. This creates an added demand on producers for rush deliveries.

Still Some Hope—Some producers aren't willing to concede that all is lost, however. They admit that malleable iron foundries are receiving more and more competition



Malieable Founders Society

What Industry Executives Say

on more and more fronts—both from overseas producers and from other materials.

To combat this, they suggest stepped-up sales and engineering effort. They point out that sales education is needed—even within the industry. For one thing, the replies suggest, producers should worry less about being replaced by materials or methods of proven superiority and concentrate more on the many areas where malleable excels.

"Principal cause of lower profits for malleable iron foundries is price cutting. The squeeze can be corrected by realistic, uniform cost accounting." J. R. Abbott, Treasurer, Wagner Malleable Iron Co., Decatur, Ill.

"In many instances, price cutting is being used as a measure to absorb large, fixed costs built up to maintain large operations. Also, it will be difficult to pass labor increases on to customers in 1961. But many

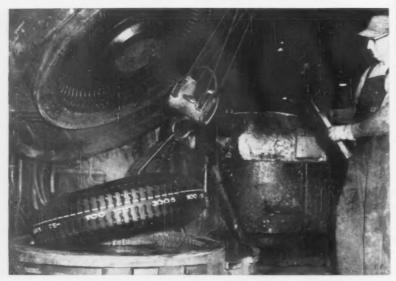
SIC 3322
Percent of Replies by Plant Size:
Total Repli

 Plant Size, No. of Workers
 Total Plants by Size
 Replies from Group by Size

 50 to 249
 52 Pct
 45 Pct

 250 and over
 48 Pct
 55 Pct

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(top) A cured tire being pulled from a tire mold at Firestone Tire & Rubber Co., Akron. The Pannier code markings are still clear after having undergone water washing, and the heat and pressure of molding.

(right) The Pannier Code Printer rolls continuously on the moving tread extrusion, providing clear, unsmudged marking of tire size, stock code, shift and date. Code printer characters are quickly and easily changed. A wide range of type size is available; special characters or trade marks can be obtained.



(right) Pannier marking is immune to the effects of the dash of cooling water that pours over the hot extrusion. Pannier marking inks are scientifically formulated for each specific use and physical factor.



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Malleable Iron Foundries, continued

industries, such as trucking, are currently in negotiations or will be during the coming year. And the resulting increases will be significant." J. S. Shellaburger, Vice President-Industrial Sales, The Dalton Foundries, Inc., Warsaw, Ind.

"Labor costs are squeezing profit margins." Wm. Scott Roby, President, Peoria Malleable Casting Co., Peoria, Ill.

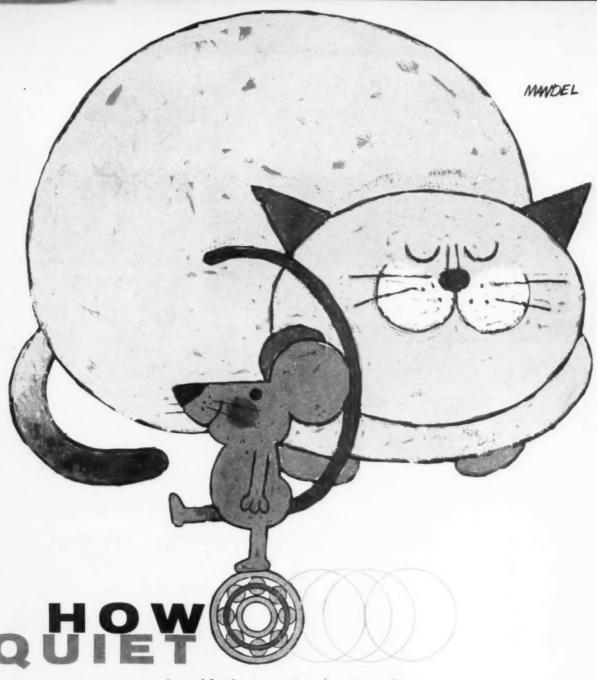
"We are squeezed out of foreign markets while imports hit us at home." H. T. Morgan, Vice President, New England Malleable Iron Co., Warwick, R. I.

"Domestic competition has stiffened. But costs, including taxes, continue to go up. Greater demand for products should reverse the trend." P. R. Van Duyne, Chairman of the Board, Meeker Foundry Co., Newark, N. J.

"The malleable iron industry has been hard hit by the overall recession in business." M. D. Yatsko, President, Terre Haute Malleable & Manufacturing Co., Terre Haute, Ind.



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Sales Boost Is Key to Profits

Founders are certain that labor costs will go up, but they aren't so sure about materials.

Higher sales, they believe, will mean higher profits without resorting to increasing prices.

 Nonferrous founders are looking forward to a year of greater sales and higher profits—without increasing prices. These are key points brought out in The IRON AGE's annual survey of executives. Replies represent 17 pct of the employment in plants with over 50 workers.

The industry has its problems. One of the largest is overcapacity which has led to price cutting. Yet, in spite of this, many companies realize there is a continual need to modernize facilities—both to improve quality and reduce costs.

Self-Criticism—At the same time, the industry came in for some self-

criticism. Much of the criticism centered on pricing practices and failure of producers to stand by quotations. It is thought that a better knowledge of costs might improve this situation.

Higher sales in the coming year are expected by 76 pct of the respondents. At the same time, 50 pct expect profits to be higher. But 27 pct expect lower profits, compared with 23 pct who expect them to be about the same as 1960.

Nonferrous Founders Hope to Avert Price Hike



Prices are expected by 48 pct to hold even. This is slightly more than the 42 pct who predict selling prices will go higher.

Key to Profits—Higher wages are forecast by 86 pet of those answering the survey. The outlook for material costs is less clear. The price of materials is expected to stay the same by 47 pct. But 46 pct believe costs will rise in 1961.

But the key to higher profits would seem to be the predicted boost in sales. As one executive points out, fixed costs are high. The greater the utilization of facilities, the better are the prospects for an improvement in profit margins.

More for Autos—The trend towards greater use of aluminum castings in automobiles, hastened along by the new, smaller cars, is cited by some as the reason for greater optimism in 1961.

Unlike many other durable goods industries, foreign competition doesn't figure very prominently in the industry's problems. Only a few believe it is a factor and the impact is more specific than general—as is the case with some hardware and plumbing items in some coastal markets.

Ease the Squeeze—The larger problems are price cutting and labor



Aluminum Co. of America

What Industry Executives Say

costs. Improved demand, it is believed, will help ease squeeze on profits currently caused by price cutting. Solution to the labor costs problem is not as easy.

No one expects wages to go lower. Consequently, lower labor costs must come about through improved efficiency. This calls for modernization and research. Modernization is tied to depreciation and other taxes. But some executives believe more should be done by the industry as a whole to develop new production techniques.

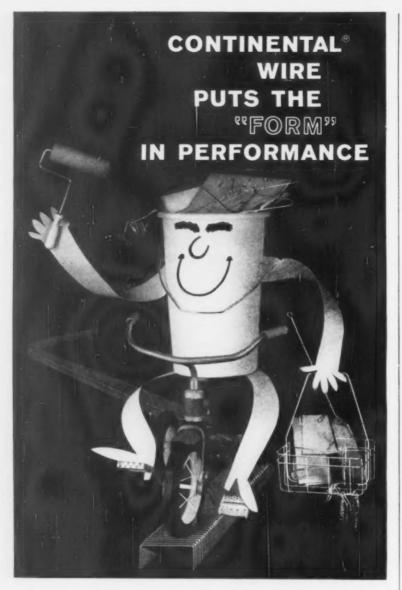
"We don't cut prices, we raise prices. But taxes and labor costs outrun us. Foreign competition will bring us to our knees. No profit and expensive money prevent us from modernizing. Inflation is about to become rampant." Oscar Zielke, President, Product Engineering Mfg. Corp., Bridgman, Mich.

"Profits in the commercial investment casting industry have always been relatively low. This is probably due to an excess of small companies in the field. Many have an inade-

Continued

SIC 3361 Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 99	54 Pct	67 Pct
100 and over	46 Pct	33 Pct



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quate concept of cost and return on investment, all of which encourages price cutting.

"As the industry matures, managements must realize the importance of stable prices to sustain profits which should be invested in improved plant, equipment, and production techniques for greater operating efficiency.

"Only this sound business philosophy can bring the lower prices necessary to broaden the market horizon for greater sales." J. H. Morison, President, Hitchiner Manufacturing Co., Inc., Milford, N. H.

"We are being hurt by price cutting. Labor costs and inability to modernize production equipment go hand-in-hand and, to some extent, so does foreign competition.

"If we adopt some of the enlightened policies for depreciation of our foreign competition, we will be able to reduce labor costs with better equipment. This would at least decrease our inability to modernize production equipment."

W. C. Smith, President, H and S Metal Products Co., Los Angeles.



"I'm going to invite some government people in to get some pointers on evacuation!" How a Shrink-Fit E-x-p-a-n-d-s Profits

Copeland Saves \$100,000.00 A Year

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Press-Fit Method

In the assembly of motor-compressors for their air conditioning and refrigeration products, Copeland Refrigeration Corporation formerly employed air presses for force-fitting their 1/5 HP through 1½ HP motor housings and stators. This method was costing Copeland \$100,000.00 annually in labor, material and quality control expense to maintain the high quality of its product.

TOCCO Shrink-Fit Method

To reduce these costs, Copeland installed a 30 kw, 10,000 cycle TOCCO Induction Heating Unit. Motor housings are heated to 400° F. resulting in up to .013" expansion. After cooling, the motor housing shrinks to form a predictable and perfect fit with the stator. Stator scoring and distortion are eliminated and \$100,000.00 annual saving realized.

Whether your production problem is shrinkfitting or higher temperature applications such as brazing, heat-treating, forging or melting, look to TOCCO for an economical solution to any metal-heating problem.



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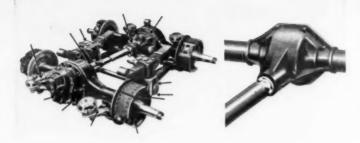
Matching each new advance in automotive technology, Malleable is now available in a broad range of properties, including tensile strengths from 50,000 to 120,000 psi!

Find out now how much Malleable castings can improve your products. Contact any company that displays this symbol



For Free Literature on advantages of Malleable iron castings, with examples from the automotive industry, ask any member company for Data Unit No. 113, or write to Malleable Castings Council, Union Commerce Building, Cleveland 14, Ohio.

MEMBER MALLEABLE ASTINGS COUNC Testifying to Malleable's outstanding ability, pearlitic Malleable iron crankshafts are now used in both cars and trucks, like this new heavy-duty highway hauler. Pearlitic Malleable was chosen for its high strength. wear resistance, damping capacity and machinability Malleable is the most machinable of all ferrous metals of similar properties.



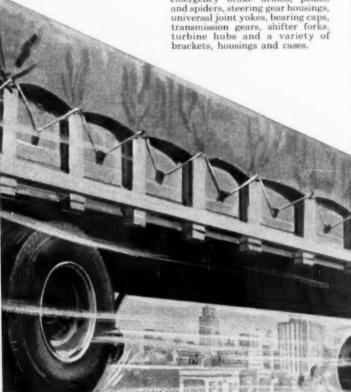
From the smallest cars to the largest trucks, all American vehicles rely on Malleable for a range of uses. In this tandem axle, for example, a total of 36 parts is Malleable.

Malleable differential carriers form the backbone of the rear axles on many new compact cars, as shown at the right above. Tubular steel extensions are pressed into the Malleable housing where they are "puddle" welded. Decisive factors in Malleable's selection were strength, economy, ease of machining and ability to be produced in a design that required a minimum of tooling expense.



The increasing conversion from other materials to Malleable castings for all kinds of parts from crankshafts to door hinges is adding momentum to the automotive industry's steadily increasing use of Malleable.

Among the many Malleable iron castings in this composite car are torsion bar arms and brackets, rocker arms, fan pulleys, sprockets, emergency brake drums, pedals and spiders, steering gear housings, universal joint yokes, bearing caps, transmission gears, shifter forks brackets, housings and cases.



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MISSISSIPPI

Mississippi Malleable Iron Co., Meridian

NEW HAMPSHIDE

Laconia Malleable Iron Co., Laconia

NEW YORK

Acme Steel & Mall. Iron Works, Buffalo 7 Frazer & Jones Company Division Oriskany Malleabeaterien Malleable Iron Co., Solvay Oriskany Malleabeater Co., Inc., Oriskany Westmoreland Mall. Iron Co., Westmoreland

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OHIO
American Malleable Castings Co., Marion
Central Fdry, Div., Gen. Motors, Defiance
Dayton Mail. Iron Co., Ironton Div., Ironton
Dayton Mail. Iron Co., Ohio Mail, Div., Columbus 16
National Mail. and Steel Castings Co., Cleveland 6

PENNSYLVANIA

PENNSTLYANIA Buck Iron Company, Inc., Philadelphia 22 Erie Maileable Iron Co., Erie Lancaster Maileable Castings Co., Lancaster Lehigh Foundries Company, Easton Meadwille Malleable Iron Co., Meadwille Pennsylvania Malleable Iron Corp., Lancaster

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Texas Foundries, Inc., Lufkin

WEST VIRGINIA

West Virginia Mall. Iron Co., Point Pleasant

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Belle City Malleable Iron Co., Racine
Chain Belt Company, Milwaukee 1
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Kirsh Foundry Inc., Beaver Dam
Lakeside Malleable Castings Co., Racine
Milwaukee Malleable & Grey Iron Works, Milwaukee 46

These companies are members of the Malleable Castings Council

Pump Makers Fight Rising Costs

With costs going up for raw materials and labor, makers of pumps and compressors expect slimmer profits in '61.

But the majority are confident sales will top last year.

 Pump and compressor makers will be battling a rising tide of increased costs for labor and materials this year. They face a continuing squeeze on profits, heightened by extensive price cutting in the in-

Yet the majority of manufacturers surveyed by The IRON AGE are confident this year will bring greater sales. However, the majority of the sample, which included about one-fourth of the industry, expect lower profits.

More Sales, Less Profit—Almost half of those questioned (47 pct) believe sales will increase this year over last year's levels. Nineteen pct

expect lower sales with 34 pct predicting no change.

About the same number (45 pct) look for profit margins to decline this year. Twenty-four pct are counting on higher earnings. And 31 pct expect no change.

Rising wage costs are pointed out as an important factor in the profit pinch. Over 80 pct expect increased wage costs this year. Higher materials costs are forecast by 73 pct of those answering.

Higher Costs Are Expected This Year

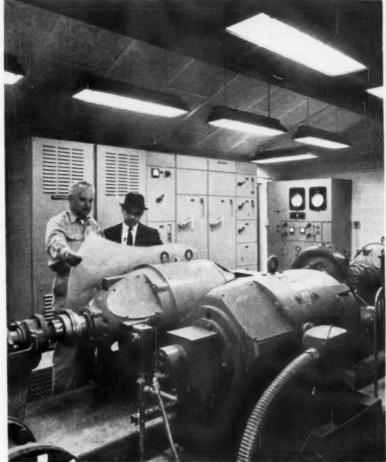
Profits Prices Sales Wages **Materials** 45 In Pct Reporting UP or DOWN == Pct Reporting No Change

Program for Action—But pump and compressor makers are going all-out to attack their problems. A variety of solutions are given to beat the profit squeeze. Generally, however, they boil down to this program: Harder selling, stronger efforts to cut costs, improved efficiency, new and better products, and diversification.

Although many forces are acting to pressure prices, the greatest number of manufacturers (61 pct) hope to keep selling prices the same in 1961. Thirty-one pct predict price increases and only 8 pct see any prospect of reductions.

Price Cutting—Right now, there is considerable price cutting by both domestic and foreign producers of pumps and compressors. Quite a few manufacturers believe the industry's excess productive capacity and high production are mainly responsible.

They also note this makes it difficult to finance capital improvements needed to turn out quality products at lower cost. Nevertheless, the industry seems determined to push ahead on these developments. They are looking for improved product designs, better



Westinghouse Electric Corp.

What Industry Executives Say

methods of manufacturing, and ways to reduce machining and assembly time. By introducing better products and widening product lines, the manufacturers hope to stimulate sales.

Labor Costs Hurt—Surprisingly, foreign competition is not mentioned too often as a serious problem—at present. Increased labor costs are listed time after time as the main headache. Taxes are also singled out as a cause of the profit pinch.

"Our domestic and foreign competitors are cutting their sales prices to levels which discourage expansion and new production. Both of these injure employment. This situation shows no signs of improving and, in fact, could get very much worse. To maintain our employment level, it is important that our entire team put forth a prompt and continued major effort to effect every possible economy and come up with new ideas to help beat our competition on costs, quality, and service.

Continued

SIC 3561
Percent of Replies by Plant Size:
Total Replies



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3 x 2	x 23/4	43/4 × 21/4
x 2%	x 3	x 21/2
x 21/5	x 31/4	x 23/4
3 4 x 2	x 31/2	x 3
x 21/4	41/4 x 2	x 31/4
x 21/2	x 21/4	x 31/2
x 23/4	x 21/2	x 33/4
3½ x 2	x 23/4	x 4
x 214	x 3	x 41/4
x 2½	x 31/4	5 x 21/2
x 23/4	x 31/2	x 234
x 3	× 33/4	× 3
314 x 2	41/2 x 2	x 31/4
x 21/4	x 21/4	x 31/2
x 21/2	x 21/2	x 33/4
× 21/4	x 23/4	x 4
x 3	x 3	x 41/4
x 314	x 31/4	x 41/2



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Pumps and Compressors, cont.

"This means we must encourage our workmen to increase productivity, develop better methods and processes, eliminate waste, and reduce costs in every possible way. We must give them the tools to help them do a better job and lead them to use those tools most efficiently." James M. Hait, President, Food Machinery and Chemical Corp., San Jose, Calif.

"Excess productive capacity and excess production has led to price cutting. Labor costs continue to increase, bringing increases in the cost of many purchased materials. Foreign competition has adversely affected selling of some of our products. But it is not as seriously affecting profit margins as much as price cutting and taxes. These will continue to have a greater adverse effect in coming years." Roy C. Ingersoll, President. Borg-Warner Corp., Chicago.

"Possible remedies to the profit pinch might be lower production, new product lines, and a reduction in controllable costs." Walter F. Deming, President, **Deming Co.**, Salem, Ohio.

"Price cutting and taxes are the factors having the greatest effect on our profit squeeze. We feel inflation will have renewed influence and cause even further price increases and lower profits in the years to come." L. W. Darling, General Sales Manager, Davey Compressor Co., Kent, Ohio.

"The cause of the earnings drop is lower activity by the industry during 1960. The remedy is diversifying and the hard sell." E. M. Freeman, President, Freeman Co., Yankton, S. D.

"Price cutting is the principal problem. Increased efficiency of operations is part of the cure. It's likely prices will be increased in time." J. L. Ledeen, General Manager. Ralph B. Carter Co., Hackensack, N. J.

"Biggest factors in the industry profit pinch are taxes, labor costs, and the industry's inability to modernize production equipment." R. A. Malcolm, President, Hancock Machine Co., Findlay, Ohio.

"The principal cause of our profit squeeze is labor cost. Until unions become realistic, we see no solution to our problem." J. J. Fortune, Controller, New York Air Brake Co., N. Y.

"I think labor costs are the dominant factor. And I am certain much is the inefficient use of expensive labor. We hope to rectify this situation during 1961." Robert C. Wyth, President, Viking Pump Co., Cedar Falls, Iowa.

"Executives everywhere are increasingly concerned with a new kind of profit squeeze. This is caused, in part, by a variety of special deals and concessions, unusual terms, extraordinary services, long trade-ins and a shift in demand from high-quality to economy models with lower profit margins.

"In addition, many of the major industries are seriously plagued with over capacity and this problem is equally real, though not as obvious. Most companies—both large and small—have experienced real difficulty in keeping abreast of developments.

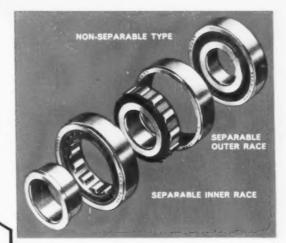
"The chief problems are price cutting and labor costs. The solutions: Work hard to get a fair price. Sell features of your equipment. Redesign products and automate for lower costs. A higher business level, nearer to capacity of the industry. Persuade labor leaders and union employees how essential it is to exercise restraint in driving up costs." W. H. Feldman, President, Worthington Corp., Harrison, N. J.

"Every company should batten down its hatches to make sure that its total resources are being effectively applied toward achieving optimum objectives." Edward J. Green, Vice President—Planning and Marketing, Westinghouse Air Brake Co., Wilmerding, Pa.

"The solution is tax relief and redesign for cost cutting." D. G. Lear, President, Weinman Pump Mfg. Co., Columbus, Ohio.

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Expect Profits to Dip Lower

Price cutting, increased labor costs, and excess capacity will all act to lower earnings during '61, steel forgers say.

However, sales are expected to surpass or equal the levels of last year.

• Steel forgers are looking for a good year in 1961. But they are not certain how strong sales will be compared with last year's.

Among those surveyed by The IRON AGE for this issue—representing almost half of the industry—there's a wide difference of opinion on the level of sales in the new year.

Equally Divided — Thirty-four pct of those answering think sales will improve over '60. The same number predict they will go lower. And almost the same number (32 pct) expect them to be about the same in '61 as in '60.

However, there are no doubts about industry opinions on other prospects for this year. The largest number, 59 pct, expect profits to shrink. Only 20 pct count on increased profits. And a substantial portion, 21 pct, look for earnings to hold level with 1960 levels.

Price Problems — According to the forgers, prices are likely to hold stable this year. Almost 70 pct see no change over 1960 prices. However, 23 pct look for price increases.

Opinions Differ on Sales Prospects



In Pct Reporting UP or DOWN



SIC 3391

A minority of only 11 pct envisions price reductions.

Price cutting, increased labor costs, excess capacity, and high taxes are generally blamed for the industry's problems. But management in steel forging plants is moving to meet these problems.

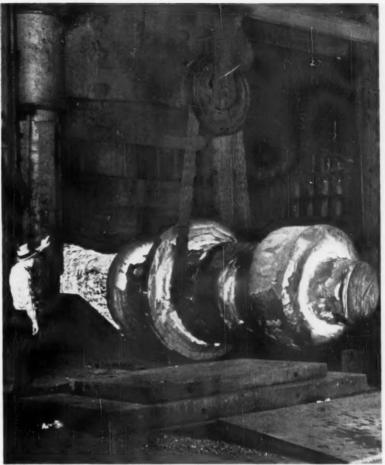
Some of the suggested remedies include: Modernizing production; cost reduction programs; tax reform; more low-cost, high-quality production; and harder selling.

Spotlight on Costs—The forgers are convinced cost control programs are needed to provide for needed modernization and improvement. But unless there's some effort to hold down wage costs the forgers are convinced their cost control measures will have trouble succeeding.

It's also hoped by many forgers that the government will move to liberalize depreciation allowances. This would permit them to plow more money into capital improvement programs.

But basically it comes back to the question of rising labor costs. Time after time those answering the survey labeled "labor costs" as the principal cause of the profit squeeze for the industry.

Percent of Rep	olies by Pla	nt Size:
Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 99	32 Pct	30 Pct
100 to 249	38 Pct	35 Pct
250 and over	30 Pct	35 Pct



Midvale-Heppenstall Co.

What Industry Executives Say

Example Given—One manufacturer in an East Coast city points out the average wage for his company is \$3 an hour, including fringe benefits. He then notes hourly costs to \$1.01 for Belgium and Germany, 95¢ for the United Kingdom, 87¢ for The Netherlands, 84¢ for France, and 81¢ for Italy.

He observes his company is in direct competition with foreign manufacturers and has lost most of its business outside the U. S. as well as much of its business within the U. S.

"The main problems are labor costs and overhead costs. Also hurting is the industry's inability to modernize production equipment. The trend must be reversed by intense cost reduction efforts. There must be a modernizing of equipment through leasing. And a return to hard selling." H. J. Flinn, Executive Vice President, Brewer Titchener Corp., Cortland, New York.

"All five of the points you name are causes for the squeeze on profit margins. They all must be met

Continued

Steel Forgings, cont.

head-on if our industry hopes to reverse the trend. We have got to learn to live in a straight-out, fullfledged, highly competitive economy. We must have low-cost, highquality production, plus optimum sales at fair margins. Every modern technique of management will be required." Elmer W. Cress, President, Buchanan Steel Products Corp., Buchanan, Mich.

"Price cutting is the principal cause. Increased volume of business will probably strengthen prices somewhat." H. C. Lackey, President, Erie Forge and Steel Corp., Erie, Pa.

"Many factors contribute including labor costs, price cutting, taxes and foreign competition. This is a custom industry. Automation cannot be developed due to the lack of repetitive type of products produced." William F. Finkl, President,

A. Finkl Sons Co., Chicago.

"I think the principal causes for reduced profit margins in our industry are price cutting, labor costs, and the inability to modernize plant equipment." Alexander G. McWilliams, President, McWilliams Forge Co., Inc., Rockaway, N. J.

"It seems to me the stand has to be made by the larger industries. The pattern is set there." Samuel Lee, President, Schmitt Steel Co., Portland, Ore.

"Profits in our industry are being injured by price cutting and labor costs. Again, as in past periods of slow industrial activity, many forging companies are resorting to the practice of slashing and, in some instances, eliminating the proper and traditional charge for dies.

"Customarily, forging prices are refigured annually to give effect to material and labor increases. With steel prices remaining unchanged and with business activity slow, this year's increased labor costs have been absorbed and not passed on." Gordon R. Walker, President, Walker Forge Co., Racine, Wis.

"Industry capacity is much larger than demand. This results in serious price cutting. And this, coupled with continued cost increases for labor and raw materials, brings a serious profit squeeze." C. H. Smith, Jr., President, Steel Improvement Forge Co., Cleveland, Ohio.

"The two principal causes of the profit squeeze are labor costs and taxes. Possible solutions are: Intensive organization of industry in the direction of holding the line on wages, increasing production with no additional labor costs (excepting the capital costs of improved equipment and automation), and revising contractual agreements that limit management's right to manage.

"In addition, we need to revise and redesign the tax laws to create a healthy business condition." G. H. Fromer, Vice President and General Manager, Atlas Drop Forge Co., Lansing, Mich.



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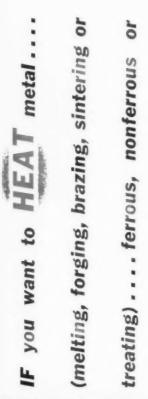
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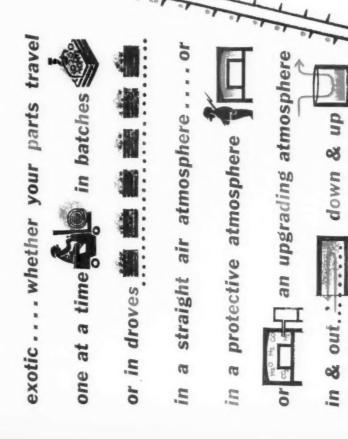
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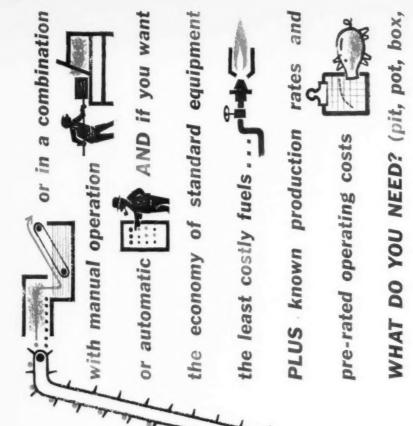
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Steel Founders Face Problems

There's no excess of optimism among steel founders. Most don't expect a strong sales upsurge.

The profit pinch bothers many, but they are looking for ways to solve it.

 Many steel castings makers are concerned about the industry's capacity in relation to present demand.

For the coming year they see this surplus of supply over demand as a problem. But they are not giving up on the future.

Because of these problems there's no excessive optimism in the industry about the outlook for '61. Those surveyed by The IRON AGE included plants representing 40 pct of the employment in the steel castings industry. Those responding looked for these developments in 1961: No substantial change in

sales. The majority, 42 pct, believe shipments will stay at about the level of 1960. Thirty-five pct expect improved sales, while 23 pct are concerned about lower sales.

Profit Decline Expected-A continued decline in earnings is also foreseen. Almost half those who replied look for lower profits in '61. No change is predicted by 35 pct. Only 19 pct count on profit improvement this year.

Despite this, the majority believe

Sales Should Stay Close to '60 Levels



prices will not rise. This opinion is held by 46 pct, with 35 pct expecting price increases, and 19 pct looking for reductions.

Adding pressure to prices will be increased wage costs, anticipated by 88 pct, and greater materials costs, expected by 72 pct.

Counterattack—To offset these problems, the castings makers are relying on greater selling efforts, modernization, cost - cutting programs, and improved depreciation allowances.

They point out, however, that the industry's excess capacity is not helping in the present sales slow-down. It's estimated that the industry has not operated much above 50 pct of capacity in the last 20 months.

More successful, they maintain, would be reducing tonnage, practicing cost-cutting, and renewing selling efforts to convert new customers to the casting process.

Other remedies suggested include better materials handling, greater mechanization, more restraint by labor unions in wage negotiations, product redesign, and development of new services for industry and the defense program.

Percent of Rep	olies by Pla	nt Size:
Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 99	13 Pct	5 Pct
100 to 249	37 Pct	39 Pct
250 to 499	30 Pct	40 Pct
500 and over	20 Pct	16 Pct



American Steel Foundries

What Industry Executives Say

Steel Prices Watched—A big factor in deciding the industry's price and competitive position will be the course of basic steel prices. The founders closely watched the steel industry last year to see what price increases, if any, would follow the signing of new labor contracts.

They are still watching basic steel for any signs of a rise in steel prices. Any changes would have an immediate effect on the cost of castings. Domestic price rises for castings, many feel, will only further increase sales by foreign producers. "The main cause is price cutting due to desperation attempts to attain volume in an industry that has double the capacity to supply the needs of its market at present.

"Also, labor costs amounting to 50-60 pet of production costs, increase almost automatically as contracts are based on basic steel wage patterns or area rates. We are a custom industry and increased wage costs are almost impossible to offset by automation or by major improvements in technology.

Continued



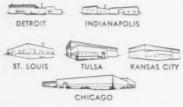
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Steel Foundries, continued

"The delivery dates required are short. Customers don't want to carry inventories. Higher foundry costs result due to uneconomic scheduling. Customers demand and get fringe benefits at no extra costs (e. g., extra finishing, inspection, tolerances, etc.)" D. R. Francis, President, Alloy Steel Metals Co., Los Angeles.

"The worst problems are increasing labor costs together with price cutting. Competition is very high in a sick industry." Albert Davis, Assistant to the President, Electrocast Steel Foundry Co., Cicero, Ill.

"The industry's inability, especially among medium to small companies, to obtain depreciation dollars to replace machinery that has become obsolete. This then holds down the productivity of the employee in these companies. Large companies have immense and longrange borrowing capacity that eliminates them from this difficulty. Their bad days will come much later. We must get Congress to give relief to smaller-type industries on this depreciation problem.

"The principal cause of the earnings decline is the inability to modernize. An improved tax structure and better depreciation allowances are needed." J. H. Barker, Assistant Secretary-Treasurer, Mountain State Steel Foundries, Parkersburg, West Va.

"Price cutting along with increased labor costs are the main reasons for reduced profits. I would suggest better cost procedures in foundries to revise the false policy pursued. Also, there must be a better realization of what price cutting means to the industry as a whole."—Paul H. Stuff, President, Ross Mechan Foundries, Chattanooga, Tenn.

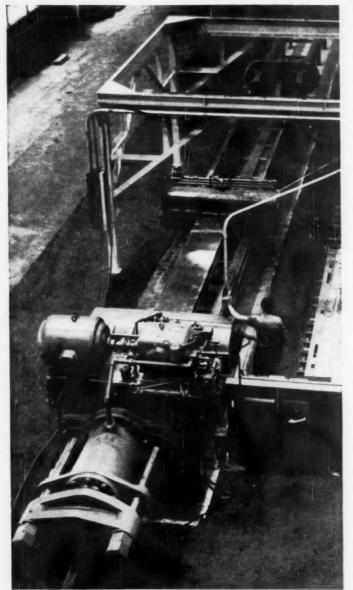
"We have recently raised prices which should tend to balance our higher labor costs. Material costs will go up with increases in freight. The people in the industry tend to panic and cut prices to get business. It might be better to retrench and operate at lower tonnages than try to secure tonnage. That way everybody in the industry loses. It is better to have sales people spending time persuading people to convert fabricated parts to casting, rather than have them out cutting prices."

J. W. Kaufman, Foundry Manager, Wilkerson Nutwell Co., Fresno, Calif.

"We undertook an extensive modernization and expansion program in our steel foundry which was completed in mid-1960. As yet we have not been able to generate sufficient additional business to warrant this expansion. But we are still optimistic about 1961. And we believe with increased sales effort we will be able to justify this expansion program. In our opinion, 1961 will be a year of 'separating the men from the boys' in the steel foundry industry." R. L. Gilmore, President, Superior Steel & Malleable Castings Co., Benton Harbor, Mich.

"Price cutting starts with the prime customer selling too low and a chain reaction of suppliers in turn selling too low to relieve their customers of losses. This chain reaction must be reversed by the suppliers charging a fair price so the prime customer realizes he, too, has to charge a fair price." W. J. Shive, Vice President and Sales Manager, Sterling Steel Casting Co., Monsanto, Ill.

"The foundry industry has operated for the last 20 months at approximately 50 pct of capacity. There is a compelling reason to believe the industry possesses a very substantial excess of capacity over demand. This has led to, and will continue to create, price cutting, chaotic market conditions, and instability. Naturally, high taxes, accelerated labor costs, and unrealistic depreciation policies, will also dampen the willingness to assume business risks." R. W. deWeese, Vice President, Esco Corp., Portland. Ore.



Hyde Park

STRETCHER LEVELLER

at Anaconda Aluminum Company

TERRE HAUTE PLANT

This photograph shows 375 ton leveller designed for handling sheets up to 78 inches wide by 34 feet long. Hyde Park Levellers have a complete range of stretching capacities from 150 to 1250 tons—for levelling ferrous and non-ferrous sheets in size up to 120 inches wide by 500 inches long.

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Photo courtesy of Anaconda Aluminum Company also shows Vacu-Lift equipment.

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Nickel Alloy Grain Rolls Grain Rolls Chilled Rolls Nickel Chilled Rolls Moly Rolls Nodular Iron Rolls

All Grades Nickel Alloy fron Rolls for Hot and Cold Rolling

ROLLING MILL EQUIPMENT

Bar Mills Merchant Mills Roller Tables Stretcher Levellers Sheet Mill Shears Special Machinery Sheet and Strip Mills Pinion Stands Reduction Drives Roll Lathes Machine Work

CASTINGS

Furnace Castings Heavy Die Castings Bases Housings

Machinery Castings Slag Pots Heavy Tool Castings Floor Plates







FOUNDRY and MACHINE CO.

HYDE PARK, WESTMORELAND COUNTY, PITTSBURGH DISTRICT, PA.

Will Welding Profits Improve?

Industry opinion is almost evenly divided on whether earnings of welding equipment makers will improve in 1961.

But most manufacturers look for improvement in sales.

• Welding equipment makers are divided on whether 1961 profits will be higher or lower than last year's. Almost as many manufacturers think earnings will drop, 37 pct, as expect them to improve, 41 pct. A relatively large group of 22 pct expect profits in '61 to about equal those of '60.

On other prospects for the new year, however, the manufacturers are pretty well agreed. Among the replies received by The IRON AGE from a group representing over 70 pct of the industry's employment there are these conclusions:

Sales Improvement—The majority of equipment makers, 64 pet, look for improved sales in 1961. Fourteen pet are worried about a

decline from 1960 sales levels. Another 22 pct believe sales in '61 will not change much from those of '60.

On prices, the majority, 64 pct, see little change this year. Increases are expected by only 27 pct, with 9 pct seeing some price reductions. Rising costs are also anticipated by most of the manufacturers. Over 85 pct believe wages will rise, with more than 60 pct looking for boosts in material costs.

High Wages Blamed—The manufacturers are particularly vocal on

Greater Sales in '61, But Slimmer Earnings

In Pct Reporting UP or DOWN

= Pct Reporting No Change

SIC 3623

the question of rising labor costs. Many believe that such increases, especially when selling prices can't be raised, are the main factor in pinching profits. Also, some note, this hinders U. S. producers in competing with foreign producers.

The only sound answer, as those surveyed see it, is a rigid, intelligent program to cut costs and improve production methods. The problem of getting the necessary funds for modernization and expansion is one most producers face.

Battle Against Costs—But they are convinced that only with such cost-saving methods will they be able to hold or stretch present profit margins. Even with this, some believe price increases are necessary.

As yet, foreign competition is not given as an important threat to the industry. It's noted that overseas sellers have not been a strong factor in the U. S.—as yet. However, foreign suppliers have taken away some American business in other areas, including the Latin American markets. And if the cost problem persists, more sales losses to foreign competitors are predicted.

More Sales Will Help—Welding equipment makers are also convinced an increased volume of sales

What Industry Executives Say

will do much to solve their problems. When demand improves and sales increase, they say, the industry should regain some of its vigor.

The industry has always been astute about coming up with better and faster equipment, new techniques and methods. There is no reason to believe these trends will not help in the future.

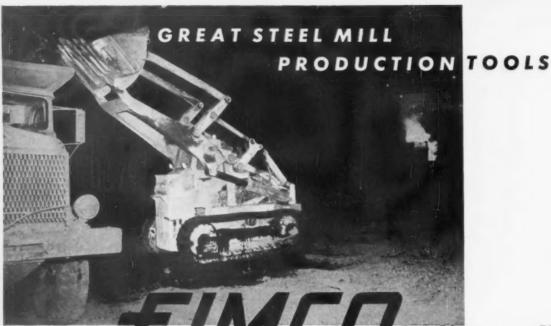
If they are combined with the industry's desire to closely control costs, the outlook for domestic welding equipment makers cannot help but improve.

"All these factors are contributing to the profit squeeze in our industry—none is the sole cause of it. There is no question but that price cutting enters into it. Labor and material costs also have a direct bearing, especially when we can't raise the prices on our products.

"Competition in our industry is so keen for the amount of business available that competitors are perfectly willing to cut prices to get business. Therefore, we would lose more business if we attempted to Continued

SIC 3623 + Percent of Replies by Plant Size:

Plant Size, No. of Workers	Total Plants by Size	Replies from Group by Size
50 to 99	37 Pct	41 Pct
100 and over	63 Pct	59 Pct



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Welding Equipment, cont.

raise prices to keep pace with increasing costs. Our feeling is that our only salvation is developing more and more cost-saving methods so that we will be able to at least hold the profit margin or possibly increase it." Ralph M. Leitzel, Vice President and Treasurer, Federal Machine & Welder Co., Warren, Ohio.

"The principal cause of the profit squeeze is non-justifiable wage raises in the metalworking industry. These, in turn, cause increases in all components from switches to capacitors. Aluminum is a potent factor in our costs. Costs which can be lowered by more efficiency are more than offset by the demands of labor." Louis Herrine, Purchasing Agent, Forney Mfg. Co., Fort Collins, Colo.

"Foreign competition. We must have a realistic approach from our customers on this competition or eventually face complete dependence on foreign suppliers." Q. T. Wiles, President, Good-All Electric Mfg. Co., Ogallala, Neb.

"There is only one problem—the industry does not have enough volume." H. W. Beronius, President, Welding Machines Mfg. Co., Swift Ohio Corp., Detroit.



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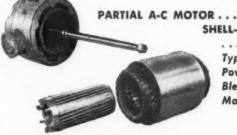




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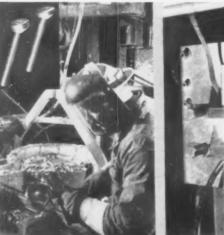
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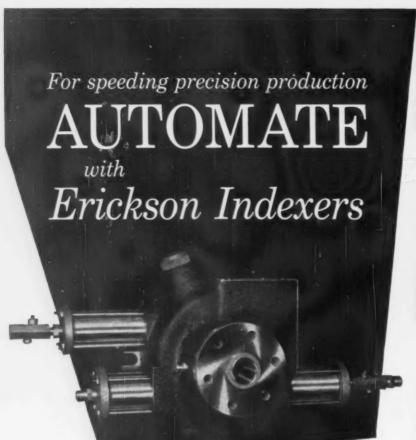
Consistent metal from St. Joe means consistent results in die-casting.

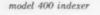
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Automatic drilling of cross holes being done on Erickson Model 400 Speed Indexer with air cylinder and Expanding Drawbar Mandrel. Indexer equipped with interlock limit switches.



Angular drilling in jet part held in air operated collet chuck on Erickson indexer operating automatically. Entire fixture designed and built by Erickson.



Using end-clamping for half bearing, machine mills 8 oil grooves then skip indexes back to starting position for next part.



Milling four and six flats on needle valve part. Owing to size, part is placed in tail stock headfirst, and tail stock then positions it in chuck and retracts.

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How to Use

"Steel Consumption"

In Your Market Planning

Throughout metalworking, the pattern of steel product use by various industries is a key tool for market planners.

Here's a study showing past and projected consumption of six steel products in 15 states by major metalworking industries.

• Many a company has found a simple but rather accurate way of projecting future sales and checking past performance. The basic tools are easy to come by: (1) A customer list coded by each customers' principal Standard Industrial Classification (SIC); (2) a table showing the company's total sales to each major SIC group—a simple IBM tabulation derived from the coded customer list; (3) further breakdowns by sales areas, states or regions.

These lists are interesting. But to be useful they have to be related to something specific, like total use of the company's product in a given year. Sometimes this is published in the Census of Manufactures of the U. S. Bureau of the Census. But more often than not such information is several years old when it is issued. This can't be avoided because of the size of the job the Census Bureau has.

Next Best—The next best thing is to find a correlation between sales of a company's product and some data that are fresh. And not only fresh, but in an area where the next six months' performance can be predicted with a fair degree of accuracy.

This is why The IRON AGE commissioned Herman B. Director Associates, Washington, D. C. to prepare the tables on the following pages. They show two things: (1) Estimated 1960 consumption by metalworking of six major steel products in the 15 states that chew up about 85 pct of all the steel used by the U. S. metalworking industry; and (2) an estimate of first half 1961 consumption.

The reasons for selecting steel

consumption for this marketing tool were:

- (1) The American Iron and Steel Institute reports steel shipments monthly by 21 "industry" categories. Herman B. Director Associates has developed formulae for converting these 21 categories into Standard Industrial Classifications so they'll be useful to most marketing people.
- (2) More metalworking companies can correlate their sales with steel sales than with any other product. Steel, then, is the best common denominator.
- (3) The data are fresh. Computations start with the latest Census of Manufactures. This is updated by monthly steel shipment reports and constantly modified and crosschecked by the latest figures on specific industries from both industry and Census Bureau sources.
- (4) They can be projected with a fair degree of accuracy. The first of these studies was published Jan. 7, 1960. Its overall accuracy was 91.9 pct. (continued)

The Forecast: How Accurate?

The first-half 1961 steel consumption forecast shown on the following pages uses the same techniques employed on the IRON AGE 1960 forecast.

The 1960 forecast had an overall accuracy of 91.9 pct.
One area was within 2 pct.

■ The executive who must base at least part of his planning on statistical projections wants the answer to one question: How good are the figures?

There is a difference between an opinion survey in which people are asked what they expect in the year ahead and one which cites specific figures. The former seeks an accurate reflection of opinion prevailing at a given time; as long as the sample is representative the opinion will be too.

'Computers Help—The latter demands detailed study of industry, geographic and basic economic trends, backlogs and inventories. And all, in this case, in specific tonnages. Computers and tabulating machines are available to refine the data—but it must be adjusted by the experience and foresight of a relatively small group.

The techniques used to develop the first-half 1961 forecast data on the following pages are the same as those used last year for a 1960 forecast (IA Jan. 7, 1960, p. 281).

Small Problem—The prior year's consumption, corresponding to the 1960 estimate on these pages, was less of a problem. Most of the 1959 data were on hand when the tables were prepared in 1959.

How did the forecast compare with the facts?

Projection Required—The 1960 estimates were based on anticipated levels of activity for the first half

of that year. The first quarter was a period of inventory-building and fairly high industrial activity.

The second quarter marked the start of large-scale inventory with-drawal. In that period inventories built up in the first quarter were used up. Also, an extra million tons of the products covered in the forecast were withdrawn from inventories by steel users.

Adjust for Warehouses — The American Iron and Steel Institute's form AIS 16 shows actual shipments to steel consuming industries during the first half of 1960. These figures, adjusted for service center shipments to steel users, can then be compared with the forecast. The table on this page shows the results.

In terms of total shipments, the

forecast was within 91.9 pct of the actual shipments to these industries.

Other Categories—Seven of the major classes including "All Other" were more than 85 pct accurate. Two fell between 80 and 85 pct and two were less than 70 pct accurate.

In the major consuming industries the forecast was accurate enough for use as a marketing tool.

Failure to come closer on tractors and farm machinery was because production in this field fell far below estimated demand. Actual production was less than 70 pet of what had been estimated by most industry sources. The Dept. of Commerce had in fact estimated a 5 pet increase in tractor and farm machinery output.

Fact vs. Forecast

A comparison of last year's (Jan. 7, 1960) forecast with actual shipments for the first half of 1960, in net tons.

SIC Code	Consuming Industry	Forecast	Fact	Pct Accuracy
344	Structural metal products	4,350,618	4,171,270	95.7
352	Tractors and farm machinery	1,146,274	834,094	62.6
353	Construction and mining machinery	441,180	379,810	83.8
354	Metalworking machinery	403,191	484,384	83.2
356	General industrial machinery	1,287,808	1,303,357	98.8
3621	Electrical appliances	1,180,137	1,072,926	90.0
371	Motor vehicles and equipment	8,559,216	7,552,550	86.7
372	Aircraft and parts	94,565	87,430	91.8
373	Ships and boats	375,180	283,532	67.7
374	Railroad equipment	664,920	743,808	89.4
	All other	4,343,523	4,223,018	97.1
	TOTAL	22,846,612	21,136,179	91.9

To Use These Tables:

Marketing executives consider the type of data on this and the following seven pages one of the most useful of all planning tools. The steel industry financed a study on this type in 1957, based on the 1954 Census of Manufactures. A year ago The IRON AGE published data in the form used here (IA Jan. 7, 1960, p. 281).

These studies report on six major steel products in the 15 states that use about 85 pct of the nation's steel. Since they are designed for use by metalworking they embrace only steel used by that industry.

Note too that they are set up by Standard Industrial Classifications (SIC) because most companies use SIC data as a base for their market planning work.

One reported use of the data published in January 1960 was in combination with The IRON AGE quarterly survey of capital appropriations. That survey is sponsored by The IRON AGE and conducted by the National Industrial Conference Board. The result of this combination can be a rather useful market planning tool.

Here is another method—and probably the most widely used one—of putting these data to work:

Many companies now have their customer lists coded by SIC. This permits coding sales on an SIC basis.

The next step is to see if there is a relationship between sales to various industries and their consumption of one of the steel products shown here. For this part of the study, use 1960 steel consumption data.

If that relationship is close the steel consumption forecast for the first half of 1961 can then be used to spread expected sales volume by states.

The 1960 consumption data has another marketing use. Where there's a good correlation between a company's sales and steel use in a given state, management can check each sales district against a norm. In this way sales effort and expense can be adjusted more closely to the market potential.

Reprints of this article are available as long as the supply lasts. Write Reader Service, The IRON AGE, Chestnut & 56th Sts., Philadelphia 39, Pa.

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VOUL 4004 UNDO products for 1960 and half of 1961, net tons. STAINLESS SHEET & STRIP HU40A40N000N00H OFHH 4 NOOMAN N CALVANIZED SHEET & STRIP HORSING HAN D 4 DAUGHOVOVONHUQHOON NOVOHU H00040H0400304b04 F400 major steel наропоном на «но PERSONNENS NECESSANDING PRODUCT 4000000000044000000 Six DEGGENORMOOMATION 0450000044400000 Estimated consumption of (Year) DAHAMO DONOBHMAN HAL WALDWARD nahonnaodad HHUHNO NHM UPUU POHNOUNHU40 HDOO HUDONFBAUON HU4M40 4M0

CONNECTICUT

Estimated consumption of six major steel products for 1960 & half of 1961, net tons.

		CARBU	CARBUR FLATE	CARBON	ARBOR H.R. BARR	CARBON H. B.	ARRIVA II.R. SHEET & STREE	CARRON C.R. SIGRI & STRIP	THE S STRUE	CALVARIZ	GALVANIZED SHEET	STAINLESS SH	TAINLESS SHEET & STRIP
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Estimated consumption of six major steel products for 1960 and half of 1961, net tons.

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Ceneral 1	General industrial machinery	1 5 7	7 9	3 4 0	O4	2 4 0	17	2 8 0	3 4 2	7 5	8 4	4	30
Office an	Office and store machines			9 6	8	4 4 9	2 2 2	0 2 5	4 7 8	2 6	4 4	N	H
Service a	Service and household machines	4 2	0	4	0	0 3 7	0 10	5 7 0	es es	2 8	10	0	9.59
Wiscellen	acellaneous machinery parts	7 5 23	4 4	8 8 4	4 3 0	770	4 23	4 11 4	2 4 0	4 6	23	8 4	1 g
Electrica	ectrical industrial apparatus	17	6	0	0 0	3 2 2	267	872	200	10	8 2	2 8	3 4
Riectrica	lectrical appliances	2		02:	00	9	10	200	01	1-1		0	200
Engine el-	tagine electrical equipment	4 6	23	2 6 4	2	20 00	3 7	12	0	0	ed		5
Commission	ommunication equipment	43	4	4 3 5	2 3 0	2016	300	4952	2723	4	4 13	O	
Metor veh	Metor webicles and equipment	4 9	(A)	-	100	200	200	4	3 5 4	etj	2 2 6 2	1 1 6 7	10
Aircraft and par	ircraft and parts	N C	10	0 0	3	417	Ort B	2 11	0	1	0	7 23	
Rellroad	Reliroad equipment	4 17 14 14 14 10 10	15 0 0 0 0	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	23 24 25 25 25 25 25 25 25 25 25 25 25 25 25	000000000000000000000000000000000000000	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	47 80 94 00	04	4 90	N 4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	00	40
POTAL TIL DIOIS	DIOTS	538784	216612	591456	223689	812921	409132	1128713	266056	272937	132890	27360	

N

Estimated consumption of six major steel products for 1960 and half of 1961, net tons.

			COMPONE DAMA BOOK	- INVES	ADDRESS DANS	ARMAN H. R. SHEET & STREET	CARBON C. R.	ARBON C.R. SMEET & STRIP	of When	VANIZED SHEET	STADMLESS SH	SHEET & STRIP
CONSUMBIC DESCRIPTOR	1980 Clearl	1961 (6 No.)	1980 (Year)	1901 (6 Mp.)	1900 (Year)	1961 (6 70.)	1980 (Year)	1961 (6 No.)	1990 (Year)	1961 (6 No.)	1960 (Year)	1961 (6 No.
Cutlery, tools and hardware	4 2 6	0	4	6 7	0	4 6	4 3 6	2 5	7 7	9	01	NO.
Heating and plumbing equipment	0	0000	200	10	7 2 3	0	10	10	0	000	000	2 8 5
Structural metal products	105511	61	17	7 8 9	5	9 7 8	0 6 9	0	1 10	0	0	-
Metal stamping and coating	20	10	2 9 5	1 5 4	764	6 8	000	0	20	4 7 2	4	-
Lighting fixtures	9 9	10	1 8 5	101	0 2 8	0 1 2	30 4	6 7	10	4	10	100
Metal products, n.e.c.	m	8	1 8 1	1 6 4	0	4 4	2 2 3	0	100	1	0	107
Engines and curbines	0	14	6	2 6	2 C A	101	1 1 3	10	d er	7.5	0	
Tractors and ferm machinery	1 2	0	103	4 4 0	070	2 3	0 4 1	8	10	6 9 6 4		
Construction and mining machinery	0	0	000	3 4 5	5 3	0 0	2 7	2	1 10	e ex		
Metalworking machinery	9	10	2 8 1	5	1 4 6	0 9	0	10	10	4 4	4	•
Special-industry machinery, n.e.c.	305	0	63	9	1 1 6	10	1 50	7 3	10	100	¥	61
General industrial machinery	00	6 8	0 9	1 3	0 1 2	9	194	4	4	0	4	
			100	cu	2 6	8	3 6	2 6	1	1		
service and household machines	3 4 2	0	4	CZ x4	2 7	6 5	6 7	10	10	14	4 7	6 8 2
Miscallaneous machinery perca	2 4	6 8	6 6	5 4	2 3 8	10	1 3 4	4	4 5	-		100
Electrical industrial apparatus	20	0	4	2 0	2 9 5	3	1 8 4	20	0	19	100	
Electrical appliances	3	7	17	0	3.7	2 7	20 5	2	0	4		
ingine electrical equipment	7 7	4	2 6	0 8	10	0	2 4	0	4	6"	1	
Communication equipment	9 9	3 5	106	5 8	14	10	772	4 2 4	0	-		
Motor vehicles and equipment	4 4 00 00 00 00 00	7 8 2 3	0		217000	119396	-	N	4 8 10 3	26457	3 9 0 9	2 1 5 0
ALTERNIT ALM DATES	0	17	1 8 4	0	000	000	136	0	6 9	9 0	19	69
Satisfacial actions	27	000	O s	20 0	4	1 80	02 +	-10	21	ed i		
tokorcycles and bicycles	3	0 00	100	0		3	1000	200	200	000	4 4	0

MARYLAND

Estimated consumption of six major steel products for 1960 and half of 1961, net tons.

13902

89303

277632

460652

171947

135028

	785	CARBON PLATES	CARROW N.R. BAR	R. BARS	CARBOR H.R.	SHEET & STRIP	CARBON C.B.	SHEET & STREET	CALVANIZZED	TABLE CAN	STABLESS IN	WILL WILL
COMISION DIED DEDUSTRY	1960 (Year)	1961 (6 Mg.)	1960 (Year)	1961 (6 No.1	1990 (Near)	1961 (6 No.1	1250 (Kear)	1961 (6 No.)	1960 Crearl	1961 (6 Np.)	1990 (Year)	1961 (6 No.3
Cutlery, tools and hardware Meating and plumbing equipment Structural metal products Metal stamping and costing. Linktures	26 09 640 640	800 800 800 800	40 40 400 4444	24 24 24 24 24 24 24 24 24 24 24 24 24 2	444 6446 6446	444	400 400 0404 0004	47.4 40.470 WURN OMON	400 400 400	474 464 8008 9800	886 886 886 886 886	444 0440
Metal producte, n.e.c. Englass and turbines	4	62	4	665	270	6058	10	7383	4	100	C)	
Tractors and farm machinery Construction and mining machinery Matalworking machinery	200	440	2000	10 mm	64 G	4 C		0 0	4 6	F 1		
Special-industry machimery, m.e.c., General industrial machimery Office and store machimes	00	44 46 60	440	10 4 H	1000	100	00000 000 000 000	4000	64 04 040 040	47		V4 F4
Macellancous machines Miscellancous machines Miscellancous machinesy parts Electrical industrial apparatus Electrical appliances	4 0 440	400	ONO	445	4 (2	0 0 4 0 000	ы и О ч ч б	4 4 10 9 3440	4 4	4 0	P 4	HIN HO
Gegine electrical applement Commanication squipment Mocrow which can and equipment Aircait and parts Ships and boats Mailroad equipments Mocorysiss and bicycles	4 50 45 45 60 45 6	2 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	4 4 4000 4000	9890 9440 9400	0400 0400 0400 0400 0400 0400 0400 040	4 6466 6466 6466	0 0040 4470	0040 0040 0040	N 0	0 0 7 44 9040		4 4
TOTAL MARTLAND	52395	26056	25500	12771	56136	8 0 1 6 2	3 1 4 2 4	4 0 2 5 6	00000	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		

MASSACHUSETTS

Estimated consumption of six major steel products for 1960 and half of 1961.

CONCENTRE INDUSTRY	CARBON	ARBON FLATES	CARBON H.R. BAR	N. BARS	CARRON N.R. SHILT & STRIP	ALLE & STRIP	CARRON C.R.	ARROW C.R. SHEET & STRIP	GALYARIZED SHRET	118.53	STAIMLESS S	SHEET & STRIP
THE PARTY OF THE P	1960 (Year)	(1961 (6.76.)	1960 (Year)	1901 (8 No.)	1950 Clear	1961 (6 No.)	1920 (Year)	1961 (6 %).)	1950 (Year)	1951 (6 %)	1960 (Year,	1961 (6 %
	000		91	ni ni	50	20	3 8 6	0 0 0	8	7 2	n	
Meating and plumbing equipment Structural metal products	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	2 5 5 5 5 5	10	24	mo	Q. V	00	FIN	04	HE	204	200
Netal stamping and conting	3 0 5		000	9 11	9 5	D E	9 4 9	10	111	101	10	
Paral products, n.v.c.	20	-1.4	110	0,	in t	9	120	204	N O	44	010	
	10	r in i	100	10	N FE	100	e N	0 10	20	(4.7)	0	
Construction and mining machinery	10	1 0 1	00	B 1	20	44	10	1	1+3			
	10000	40077	1004	ne	10.0	97	100	3000	04	100	0 10	0
	40	0	41	1	-30	11	200	200	00 00	00	0	
Macking and household machines	19	10	10	4 0	5 5 4	414	000	0 4	10	0	4	Di-
N N	9		6 4	9	04	7 57	100	101	0	N N	unt /	
Engine electrical equipment	2		0	-	5	100	3.6	1 11	20 00	0 -5	7	
Commonstantion equipment Motor vehicles and equipment	48.5	24	10	nn	200	日本	ed to	p. 0	100	+50	300	0
Atteraft and parts Ships and boats	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	12962	014	ON	0 0	01.00	日日	0	300	40	3.6	63
Railroad equipment, Motorcycles and bicycles	100		O O	3002	400 mg	10 m	4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	100 H	41004	140	1 ry 40	
TOTAL MASSACHUSETTS	235361	67347	115024	57425	147901	74639	27	4 7			0 0 0	**

Estimated consumption of six major steel products for 1960 and half of 1961, net tons. MICHIGAN

		CALINE	ARDON CLATES	CARBON H.R. BARS	BARS	CARBON H.R.	ARBON H.R. SHEET & STRIP	CARBON C.	ARBON C.R. SHEET & STRIP	CALVARIZED SHEE	SHEET O	STADULES SHEET &	ERT & STRIP
	CORSUMENG INDUSTRY	1950 (Year)	1961 (6 No.)	1960 (Year)	1961 (6 Mo.)	1960 (Year)	1961 (6 Mc.)	1960 (Year)	1961 (6 Mo.)	1980 (Year)	1961 (6 Mg.)	1950 (Year)	1991 (6
N	Cutlery, tools and hardware	0 6	62	3.4	4 4	0 0					,	1	-
	Heating and plumbing equipment	500000000000000000000000000000000000000	2 6 6	7 27	100		9 0	101	000	2 44	4 %		34 00
	Metal stamping and coating	ng	- 0	200	2	9 6	4 2 4	6734	3 3 3 6	100	2 4 7	0	
	Lighting fixtures	in c	2	200	0.0	0 4	200	1 1 1 0	11676	8 3 7	00	2	Oh.
	Metal products, n.e.c.	2276	2 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	60	10	10	569	8	350	u co	0 0	44	2 4
	Tractors and farm machinery	000	4 0	200	100	0 0	41	20	206	4	cu cu	-	
	Construction and mining machinery	0	767	200	1 4 4 5	0 2 2	0.0	2 1	4 (0	40	-		
	Metalworking machinery	4 9 4	5 7 2	100	100	200	10	**		00	ni		
	Special-Industry machinery, n.e.c.	2 9 8	2 9 1	4 2 5	0 6	4 4 4 4	40	200	0 = 0	20	1		
	Ceneral industrial machinery	0 0	10 0	0 8 4	1 1 9	5 5 3	4 8	3	1 7 3 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	2 00	10	10	t ed
	Service and household machines	9 0	200	00000	01 t	nu v	S. C.	2 4 8	2°0	20	20	cu	
	Miscellaneous machinery parts	2 3	10	40	44	2 4 0 4	200	0 10	3973	3 9 9	41	201	
	Risetrical Industrial apparatus	52	4	10	nin	10	24	0 K	4 4	n m	00		
	Engine electrical equipment	10.	4 4 2 7	2 2 2 2 2 3 2 3 3 3 3 3 3 3 3 3 3 3 3 3	200	0 0 0 0 0	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	11 10 10 10 10 10 10 10 10 10 10 10 10 1	41 41 41 41 41 41 41 41	500	44	00	410
	Motor webicies and and annimment	40	000	1 3	0	6 2	i d	7 3	4 0	00	4		
	Aircraft and parts	100	7, 10	de	4 5	(2 ×	0	00	177869	10	3 2 5 6 5	20552	1 1 3 3
	Ships and boate	12659	m	111	100	40	9 4	201	n) eri	04	12 173	7	
	Mctorcycles and bicycles	H	7	4 7 9	3 6	4	62	3.8	5 6 4		10 10	1 4	
	TOTAL MICHIGAN		226892	950904	907760	0 0 0 0 0	0 0 0						

MINNESOTA

Estimated consumption of six major steel products for 1960 and half of 1961, net tons.

	CARRON PLATES	A77.5	CARBON H.R. BARS	L. BARS	CARBON H. R.	SHEET & STRIP	CARBON C.R.	C.R. SHEET & STRIP	CALVANIZED	SHEET	STAINLESS SHEET &	& STRIP
CONTRACT DEPOSITES	(Year)	1961 (6 No.)	1960 (Krar)	1961 (6 Mo.)	1960 (Year)	1961 (6 Mo.)	1950 (Year)	1961 (6 No.)	1960 (Kear)	1961 (6 Mo.)	1960 (Year)	1961 (6 No.
Cutlery, tools and hardware	2	0	13	in in	2 3 7	60	0	0	50	0	1 1 3	101
0	0	0	4	011	9 0	000	00	9,	000	ONE	9 9	41
3 3		1000				10	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	10	9 6	4 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	100	0.4
Lighting fixtures			3	1	4	C.F	et	0	ef			
Metal products, n.e.c.	nd	Ø =	120	00	41	in :	ed to	00	M	(en c	
and farm sachinery	00	11	010	0 0	- 8	10	00	100	19	5815	20	
binery 9	N	0	100	10	30	100	4	7 7	9	M	10	
	4	2 8	4 9	100	101	4	3	17	es.			
	m	ın	8 2	0	9 9	3 2	7 7	4	0 02	m	N	
industrial machinery 3		rd.	0 0	10	1-	10	0	-	1339	10		(1)
	0	0.2	77	ın	6 8	2	200	10 11	4 6	CV CV	0	CI
1	010	in i	1 5	11%	io N	8 0	02 (e-f	ed I	7 8	0		
		36	a	10	01	1	31	120	-	1	ed ;	
	•	-	0	n -	10	2	110	40	N KO	2	00	n c
Engine electrical equipment		N	10	110	- 61	110	10	10		1		
Communication equipment		4 1	00	0	tel	In	12	117	136	7 01		
Motor vehicles and equipment		4 6	0	0	0	0	4 6	0	(V	4 4		
rts	1	(CJ.	44	10	n	02 -	rt	ed t	9		
Ships and boats	44	4 0 0 0 0 0	200	1000	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	40	4 4	0	17	1 4 7	4 5	0
lcycles			4	4								
TOTAL MINNESOTA	763	8 3 5 8	0 2 2 2	0 9 2 6 7	2000	20008	107831	20202	4 5 4 2	0 0 0 0	0 8 0	2 4 6 6

MISSOURI

Estimated consumption of six major steel products for 1960 and half of 1961, net tons.

		CASSON	CANBON PLATES	CABBON	ABBON H.R. BARS	CARBON H, H.	SHEET & STRIP	CARBON C.R.	SHEET & STRIP	CALVANIZED	ED SHEET	STAINLESS SHEET &	HEET & STRIP
	CONSUMING INDUSTRY	1950 (Vent)	1961 (6 %6.)	1950 (Year)	1961 (6 Mo.)	1950 (Year)	1961 (5 Mo.)	1960 (Year)	1961 (6 Mg.)	1950 (Year)	1961 (6 Mg.)	1960 (Year)	1961 (6 No.1
112	Cutlery, tools and hardware	2 10		6 4	00	0	60	0	0 8		6.	A	0
	Meating and plumbing equipment	10		0 10	rei	4	100	3 11 6	30	474	0 0	200	40
	Structural metal products	0	1	17	20	0	100	100	000	100	000	100	416
	Metal stamping and coating	4	100	200	100	4 0 6	100	000	7 20 2	n a	30	20	10
	Lighting fixtures		1	0	10	100	10	36	24	NP.	4	3	à
	Metal products, n.e.c.		Įť.	2 3	10	25	00	00	00	-0	1	4 5	
	Engines and turbines			el	0	101	100	9 60	17	2 (1)	-	1	4
	Tractors and farm machinery	7 2	10	0	4	4	10	100	10	M	0.1	1	
	Construction and mining machinery	0	+4	10	0 8	0	A	00	00	1	4	0	*
	Metalworking machinery	4 8	79	4	101	r in	10	100	102	m	lel		1 -
	Special-industry machinery, m.e.c.	4	va	04	2 7	7	3	6	10	3 1	180	10	
	General industrial machinery	O	r-	02	Ø	3	0	(2)	섷	1	P-		0
	Office and store machines	+4		6	0	0 2	10	1 6 6	7 5	1 4	9	N	1
	Service and household machines	2 3	7 3	8	(0)	01	7 4	3 8 4	0 9 2	6 9	1 6	(1)	0
	Miscellancous machinery parts	10	ın	3	1 6	17	10	10	10	ed		-	10
	Electrical industrial apparatus	0	4	1 1	0	4	2 2	4 9	17	8 3	1003	0	14
	Electrical appliances			4 4	01	8 6	200	0 8 7	8 6 4	9	3	(1)	4
	Engine electrical equipment			cy	0	O	0	3 8	11.00				
	Communication equipment	in	10	0	เก	20	1	0	2 3	4	cų.	CV	2 2 2
	Motor vehicles and equipment	1-	Ø	12	0 4	40	o	13	-	0	0	4	1
	Aircraft and parts	1 9	10	01	12	1 2 3	6 7	4 6	101	10	N	10	10
	Ships and boats	8	4	20	4	**	S	ın	100	10	10	1	1
	Railroad equipment	4 7 4 5	18826	17 4 2 5	1 8 4 1		8 0 00	K 0 7 0	0	100	1000	0	04
	MOTORCycles and Dicycles			0.	2		2	0	0	7	H	CV3	2
	TOTAL MISSOURI	125360	60323	70118	3 4 2 2 5	1255595	62548	2 4 2 5 7 5	89404	61136	29470	5354	2632

NEW JERSEY

Estimated consumption of six major steel products for 1960 and half of 1961, net tons.

		CARBON	AKRAW PLATES	CARBON H.R. BAR	R. BARS	CARBON H. R.	ARBON H. R. SHEET & STRIP	CARBON C.R.	ARBON C.R. SPRET & SINLE	CALVANIZED SHERT	ED SHEET	STAINLESS SHEET & STRIP	T & STRIP
1000 XX	THIS NOTE THE CONTRACTOR	1999 (Xsat)	1961 (6 No.)	1950 (Year)	1901 (6 No.)	1200 (Xeat)	1961 (5 Mc.)	1200 (Year)	1961 (6 %)	1950 (Year)	1961 (6 Mp.)	1950 (Year)	1961 (6 Mo.
3 4 5	Cutlery, tools and hardware	200	0	8911	4	32772	40 40	61685	20729	20 23	0 8 6	2 2 2 4 2 4 2 4 4 4 4 4 4 4 4 4 4 4 4 4	48 64
343	Heating and plumbing equipment	3 2 4 1	5 3	9 9	2	200	200	5 0 0	200	200	4 4	9 10	5 10
3 4 4	Structural metal products	000000	*	10	2 4	4 4 4	2 8 0	0-	8 8	000	7 4 7	1	0
9 1 1 1	Netel stamping and coating	1000	0	200	3 15	4 0 8	2 2 4	0 1 3	5 5 7	0 0	6	0	N
	Meral products, n.e.c.	10		0 2	0	7 8 9	807	366	9 5 3	4 3	53	(%)	4
1 9 1	Engines and turbines	5 5 6 2	100	8 1	4 4	1 3	7	5 6	**	(4)	ed	V	Ø.
10	Tractors and tarm machinery	4 4	n.	0 4	0	8 7	2	7 7	-	2	01		4
10	Construction and mining machinery	6 6	0	0 6 9	8 7	12	۴٦	0 0	13	7	37		
10	Metalworking machinery	4 8	H	1 8	9 6	2	S S	6 4	7 3	S)	4	-4:	
10	Special-Industry machinery, n.e.c.	6 9 3	7	473	1 7	193	9 6	372	7 8	11	2	4	4.5
3 9 6	General industrial machinery	102	rel	4 6	6 2	6 7	4	4 8	rd.	-6;	Chi	0 0 0	200
0	Office and store machines	3	N	5 8	3 7	1 9 9	9 6	307	200	7 7	173	-	20
0	Service and household machines	0	50	0 6	8 8	932	4 0	3 3 4	2 7	101	20	nl	0
0	Miscellansous machinery parts	8 4	0	8 4	200	00	3 4 5	3 5 5	1 3 3	3	20	0	20
30	Electrical Andustrial apparatus	0	0	1 6	2 2	0 5 1	F1 13	202	8 3 3	0	ed in	30	3:
E/s	Electrical appliances	r-S		6	12	2 8	1 3	1 9 4	8 7	ry.	0	-	3
9 0	Engine electrical equipment	8 8	Ø	0	0	1 4 8	ed m	287	3 3	0	4	-4	1
	Communication equipment	1-	+4	1	0	2 6 1	17 15	3 6	2 2 3	0	48	2	0
	Motor vehicles and equipment	10	0	0 6	7 2	307	6	7 2 3	4 9 2	4	23	0	0
	Atterest and parts	5 6	0	7 7	20	367	20	136	7 5	0	90	m	
273	Ships and boats	30692	4	6	0	6 7	3 3	3 0	10	n	1	2 6	e,
	Rallroad equipment	0	2436	0	12	10	7	0	0	4	10	2 4	
*	salvanta more was also assessed												
	200000000000000000000000000000000000000	208657	. 0 4 7 6 4	S A D C K R		20 00 00 00 00 00 00 00 00 00 00 00 00 0		4 2 7 4 4 9	4444	402654	AORS 7	10875	5 4 7 8

NEW YORK

Estimated consumption of six major steel products for 1960 and half of 1961, net tons.

1381 CAMP 12.0 1380 CAMP	14			400400	20040000	2		
### 1980 Creek N. 2000 Creek N	9				NONDONNA NONDONNA	9	THE STREET	
### CARDON NA. 1 1900 CCCC. 1800				Meliste		961		
100 CR42						-	CALVANIZED SHEET STADHLESS SHEET &	
100 CR42	m	01-40	0000000	04000	nunnaano	H		
### CARDON H.A. AND CARD. 100 CARD. 1	100	NO OH	440444	MOSMON	HONDYAND	CX	2	
100 10 10 10 10 10 10 1		6 14				310	V	
### 1980 Creek NA. 2000 L. 1880 Creek NA. 2000 C. 1880 C. 1880 Creek NA. 2000 C. 1880 Creek NA. 2000 C. 1880 Creek NA. 2000 C. 1880 C. 1880 Creek NA. 2000 C. 1880 C. 18	CA		61	** **		-4	ol	
### 1980 Creek NA. 2000 L. 1880 Creek NA. 2000 C. 1880 C. 1880 Creek NA. 2000 C. 1880 Creek NA. 2000 C. 1880 Creek NA. 2000 C. 1880 C. 1880 Creek NA. 2000 C. 1880 C. 18								
100 CALD	0	anad	044404	0000000	000000000	3		
### CAMON HA. SHELL ASSETT CAMON HA. SHELL ASSELL CAMON HA. SHELL CAMON HA. S	**	7000	104 D40	STOPPO	400000000	9	1	
### THE CARRY BATTER CARROW BA	4				MONA 4	961	SALE	
### 1180 CARD 11	+			H	स्तव	7	727	
### 1180 CARD 11	**	10.000	100000	1000	a Gen such and	mi	VANT	
### 1180 CARD 11	10	4440	10140401-	1000000	PHONOMAD.	180	3	
130 CARON 14, 100 CARON 14,	**	V4100	400 000	400100	OHLO 4 NOI4	0	-	
### 1990 Coats 1	50	N)	WELL HOU			126		
### 1990 CORN ##	67							
### 1990 CORN ##								
1980 Creek 1, 1980 Creek	0 0	0440	000000000000000000000000000000000000000	HPF 40M	WAL WOUND	70		
### 1990 CGGC ## 1						6 8	310	
### 1990 Company of the control of t	10	44	GC NOH	nnnnn	MB0WB4 M	190	5	
### 1990 Company of the control of t	10			मंत्र व	सराबब स	119	133	
### 1990 CGGC ## 1	4)						SK	
### 1990 CGGC ## 1	0	0011	MULTULO	OHONOH	48489488	3	C. R.	
### 1990 CGGC ## 1	9	00000	סמררסמנ	0 P D U 4 W	MODROOPA	Yes	906	
### 1990 Creek 14, 2000 Hall 1990 Creek 14, 20						8	CAR	
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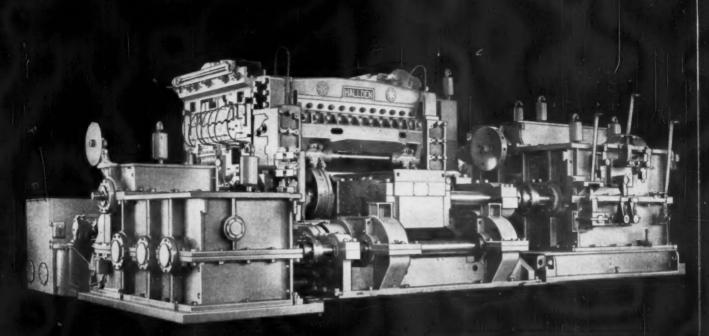
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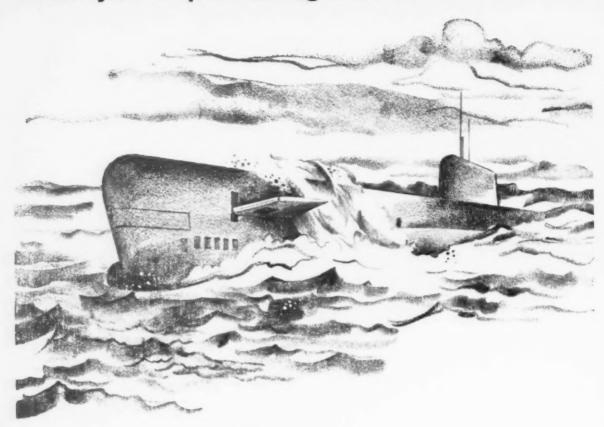
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Price and Production Data

as of January 5, 1961

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SCRAP, IRON, STEEL

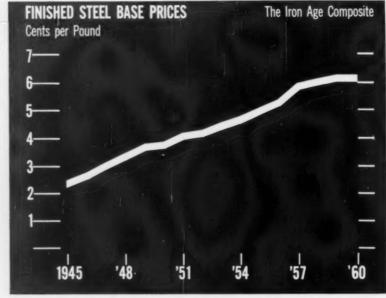
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THE IRON AGE FINISHED STEEL COMPOSITE PRICE

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Sept. 2.584 2.357 2.283 2.305 2.464 2.719 3.193 3.720 3.705 3.837 Oct. 2.584 2.320 2.283 2.305 2.464 2.719 3.193 3.720 3.705 3.837 Nov. 2.584 2.354 2.268 2.305 2.464 2.719 3.193 3.720 3.705 3.837 Nov. 2.584 2.354 2.205 2.205 2.464 2.717 3.193 3.720 3.756 4.131 Average 2.536 2.459 2.311 2.302 2.449 2.686 3.014 3.434 3.713 3.862 Jan. 4.131 4.131 4.376 4.634 4.797 5.174 5.622 5.967 6.196 6.196 Feb. 4.131 4.131 4.376 4.634 4.797 5.174 5.622 5.967 6.196 6.196 Apr. 4.131 4.131 4.376 4.634 4.797 <td></td>											
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Dec. 2.584 2.354 2.355 2.305 2.365 2.464 2.747 3.193 3.720 3.756 4.131 Average 2.536 2.459 2.311 2.302 2.449 2.666 3.014 3.434 3.73 3.662 Jan. 4.131 4.131 4.376 4.634 4.797 5.174 5.622 5.967 6.196 <td>Oct.</td> <td>2.584</td> <td>2.320</td> <td>2.283</td> <td>2.305</td> <td>2.464</td> <td>2.719</td> <td>3.193</td> <td>3.720</td> <td>3.705</td> <td>3.837</td>	Oct.	2.584	2.320	2.283	2.305	2.464	2.719	3.193	3.720	3.705	3.837
Average 2.536 2.459 2.311 2.302 2.449 2.686 3.014 3.434 3.713 3.862 1951											
1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 Jan.											
Jan. 4.131 4.131 4.376 4.634 4.797 5.174 5.622 5.967 6.196 6.196 Feb. 4.131 4.131 4.376 4.634 4.797 5.179 5.649 5.967 6.196 6.196 Mar. 4.131 4.131 4.374 4.634 4.797 5.179 5.666 5.967 6.196 6.196 Apr. 4.131 4.131 4.331 4.977 5.179 5.670 5.967 6.196 6.196 May 4.131 4.131 4.517 4.634 4.797 5.179 5.670 5.967 6.196 6.196 July 4.131 4.131 4.517 4.634 4.797 5.179 5.670 5.967 6.196 6.196 Aug. 4.131 4.376 4.634 4.797 5.179 5.670 5.967 6.196 6.196 Sept. 4.131 4.376 4.634 4.891 5.174 5.560 5.967	11101000										
Feb. 4.131 4.131 4.376 4.634 4.797 5.174 5.649 5.967 6.196 6.196 6.196 Apr. 4.131 4.131 4.376 4.634 4.797 5.179 5.670 5.967 6.196 6.196 Apr. 4.131 4.131 4.376 4.634 4.797 5.179 5.670 5.967 6.196 6.196 Apr. 4.131 4.131 4.376 4.634 4.797 5.179 5.670 5.967 6.196 6.196 Apr. 4.131 4.131 4.131 4.134 4.137 4.134 4.137 5.179 5.179 5.670 5.967 6.196 6.196 Apr. 4.131 4.131 4.131 4.134 4.139 4.134 4.139 5.061 5.179 5.179 5.670 5.967 6.196 6.196 Apr. 4.131 4.136 4.634 4.789 5.061 5.179 5.818 5.967 6.196 6.196 Apr. 4.131 4.1376 4.634 4.131 5.174 5.560 5.967 6.196 6.196 Apr. 4.131 4.1376 4.634 4.131 4.1376 5.1374 5.622 8.967 6.196 6.196 6.196 Apr. 4.131 4.1376 4.634 4.131 4.1376 5.1374 5.622 8.967 6.196 6.196 6.196 Apr. 4.131 4.1376 4.634 4.797 5.174 5.622 8.967 6.196 6.196 6.196 Apr. 4.131 4.1376 4.634 4.797 5.174 5.622 8.967 6.196 6.196 6.196 Apr. 4.131 4.1376 4.634 4.797 5.174 5.622 8.967 6.196 6.196 6.196 Apr. 4.131 4.1376 4.634 4.797 5.174 5.622 8.967 6.196 6.196 6.196 Apr. 4.131 4.1376 4.634 4.797 5.174 5.622 8.967 6.196 6.196 6.196 Apr. 4.131 4.1376 4.634 4.797 5.174 5.622 8.967 6.196 6.196 6.196 Apr. 4.131 4.1376 4.634 4.797 5.174 5.622 8.967 6.196 6.196 6.196 Apr. 4.131 4.1376 4.634 4.797 5.174 5.622 8.967 6.196 6.196 Apr. 4.131 4.1376 4.634 4.797 5.174 5.622 8.967 6.196 6.196 Apr. 4.131 4.1376 4.634 4.797 5.174 5.622 8.967 6.196 Apr. 4.131 4.1376 4.634 4.797 5.174 5.622 8.967 6.196 Apr. 4.131 4.1376 4.634 4.797 5.174 5.622 8.967 6.196 Apr. 4.131 4.1376 4.634 4.797 5.174 5.622 8.967 6.196 Apr. 4.131 4.1376 4.634 4.797 5.174 5.622 8.967 6.196 Apr. 4.131 4.1376 4.634 4.797 5.174 5.622 8.967 6.196 Apr. 4.131 4.1376 4.634 4.797 5.174 5.622 8.967 6.196 Apr. 4.131 4.1376 4.634 4.797 5.174 5.622 8.967 6.196 Apr. 4.131 4.1376 4.634 4.797 5.174 5.622 8.967 6.196 Apr. 4.131 4.1376 4.131 4.797 6.131 4.797 6.131 4.797 6.131 4.797 6.131 4.131 4.797 6.131 4.131 4.797 6.131 4.797 6.131 4.797 6.131 4.131 4.797 6.131 4.131 4.797 6.131 4.797 6.131 4.131 4.797 6.131 4.131 4.797 6.131 4.131 4.797 6.131 4.131 4.797 6.131 4.131 4.797 6.1											
Mar. 4.131 4.131 4.376 4.634 4.797 5.179 5.660 5.967 6.196 6.196 Apr. 4.131 4.131 4.334 4.834 4.797 5.179 5.670 5.967 6.196 6.196 May 4.131 4.131 4.333 4.634 4.797 5.179 5.670 5.967 6.196 6.196 July 4.131 4.131 4.617 4.634 4.797 5.179 5.670 5.967 6.196 6.196 Aug. 4.131 4.376 4.634 4.801 5.179 5.618 5.967 6.196 6.196 Sept. 4.131 4.376 4.634 4.801 5.174 5.622 5.967 6.196 6.196 Oct. 4.131 4.376 4.634 4.801 5.174 5.622 5.967 6.196 6.196 6.196 Mov. 4.131 4.376 4.634 4.789 5.174 5.622 5.967											
Apr. 4,131 4,131 4,376 4,634 4,797 5,179 5,670 5,987 6,196	Mar.										
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July 4.131 4.180 4.634 4.789 5.081 5.179 5.818 5.967 6.196 6.196 Aug. 4.131 4.376 4.634 4.801 5.174 5.560 5.967 6.196 6.196 Sept. 4.131 4.376 4.634 4.881 5.174 5.622 5.967 6.194 6.196 6.196 Oct. 4.131 4.376 4.634 4.798 5.174 5.622 5.967 6.196 6.196 6.196 Mov. 4.131 4.376 4.634 4.797 5.174 5.622 5.967 6.196 6.196 6.196											
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Sept. 4.131 4.376 4.634 4.881 5.174 5.622 5.967 6.194 6.196 6.196 Oct. 4.131 4.376 4.634 4.788 5.174 5.622 5.967 6.196 6.196 6.196 Mov. 4.131 4.376 4.633 4.797 5.174 5.622 5.967 6.196 6.196 6.196											
Oct. 4.131 4.376 4.634 4.798 5.174 5.622 5.967 6.196 6.196 6.196 Nov. 4.131 4.376 4.633 4.797 5.174 5.622 5.967 6.196 6.196 6.196											
	Oct.	4.131	4.376	4.634	4.798	5.174	5.622	5.967	6.196	6.196	6.196
Average 4.131 4.237 4.518 4.716 4.977 5.358 5.800 6.060 6.196 6.196					7						

* 1941-1944 inclusive: 2.396.

THE IRON AGE finished steel composite price is a weighted average of the base prices of 10 major steel products which account for the majority of finished steel shipments. It is weighted by the percentage that each of these products is to total finished steel shipments during the base period. With the base constant, the only changes in the composite from 1929 through 1940 or from 1941 through 1960 occur when one or more steel products prices were changed.

In the composite shown here there are two base periods. For the years 1931 through 1940 the base is finished steel shipments for 1929-1939 inclusive. For 1941 through 1960 the base is finished steel shipments for the 7 years 1937 to 1940 inclusive and 1946 to 1948 inclusive. Two base periods are used because of basic changes in the shipment pattern in the 20 years covered. In each case the products remain the same. They are hot-rolled bars, structural shapes, plates, rails, pipe, wire and hot- and cold-rolled sheets and strip. To eliminate variations due to nonferrous metals price fluctuations, no coated products are included.

Details of latest revisions which appear in current series may be found in The Iron Age, May 12, 1949, p. 139. This reference also gives a comparison of current series with former series.

STEEL INDUSTRY OPERATING RATES

U. S. Openhearth, Bessemer and Electric Furnace Ingots and Steel for Castings-Percent of Capacity

	1942	1943	1944	1945	1946	1947	19	48 1949	1950	1951	1952	1953		1954	1955	1956	1957	1958	1959	1960
Jan.	94.50	96.80	95.70	88.80	49.60	93.20	Jan 93.	60 100.4	94.0	99.9	99.3	99.1	Jan	75.3	82.7	99.3	97.1	56.5	74.3	95.5
Feb.	95.90	98.50	97.00	90.80		91.90	Feb. 93.			97.2	100.7	99.1	Feb			99.2	97.6	53.6	84.8	
	98.20		98,60	95.00	83.30	94.40	Mar 95.			102.5	102.2	101.8			93.4	100.2	93.4	52.3	92.3	91.6
		99.30				93.90	Apr. 80.			103.1			Mar.							
			97.10	91.80	52.20	94.70					89.7	98.7	Apr				89.5	47.8	93.0	80.1
					74.40	92.90	May 94			102.8	89.2	100.1	May					52.7	92.5	70.0
June	20.20	04.00	29.10	01.10	14.40	25.20	June 93.	.80 82.2	99.6	101.0	18.4	97.2	June	72.0	94.1	92.1	85.6	61.6	89.9	60.6
July	94.50	96.20	94.30	86.30	84.90	85.10	July 88	70 71.0	94.8	98.3	17.7	93.1	July	62.9	85.3	14.9	78.6	53.9	41.7	50.3
Aug.		98.30		70.70	86.90	92.20	Aug. 93			98.7	92.4	94.2	Aug.					61.1	11.5	54.2
	96.40	100.70			86.90	90.80	Sept. 96			101.2	101.9	92.1		00.1	95.7	98.8	81.8	66.0	12.7	52.9
		101.20		69.00	89.00		Oct 99			103.0	106.6	94.7	Sept.							
Nov.					85.40								Oct.			101.3		74.0	13.6	54.4
	96.60			74.80	73.90					102.6	105.9	89.9	Nov.			100.0	76.5	74.1	59.9	
							Dec 97	.70 94.8	98.0	100.6	105.6	79.7	Dec.	78.6	98.5	99.4	72.0	72.9	95.6	45.9
Average	96.80	98.10	99.50	83.50	72.50	93.00	Average 94	.10 81.1	96.9	100.9	85.8	94.9	Average	71.0	93.0	89.8	84 5	8.08	63.3	66 7*

* Estimate. Source: American Iron and Steel Institute.

Openhearth, bessemer and electric furnace steel capacity, production and operating rates . . . Canadian output, capacity.

COMPOSITE PRICE BY PERIODS

Period	Cents per	Pound
Apr. 12, 1949 to May 2, 1949		3.708
May 3, 1949 to Dec. 21, 1949		3.705
Dec. 22, 1949 to Dec. 28, 1949.		3 836
Dec. 29, 1949 to Dec. 4, 1950		3 837
Dec. 5, 1950 to July 25, 1952		4 131
July 26, 1952 to May 8, 1953		4 376
May 9, 1953 to May 21, 1953		4 390
May 22, 1953 to June 16, 1953		4 417
June 17, 1953 to Nov. 14, 1953		4 634
Nov. 16, 1953 to Dec. 15, 1953		4 635
Dec. 16, 1953 to June 30, 1954		4 634
July 1, 1954 to July 2, 1954		4 631
July 3, 1954 to July 5, 1954		4 791
July 6, 1954 to Oct 3, 1954		4 801
Oct. 4, 1954 to Nov. 9, 1954		4.79
Oct. 4, 1954 to Nov. 9, 1954		4 793
July 12, 1955 to July 18, 1955		5 175
July 19, 1955 to July 25, 1955		
July 26, 1955 to March 19, 1956		5 17/
Mar. 20, 1956 to Aug. 6, 1956		5 179
Aug. 7, 1956 to Aug. 13, 1956		5 374
Aug. 7, 1956 to Aug. 13, 1956 . Aug. 14, 1956 to Feb. 11, 1957 .		5 625
Feb. 12, 1957 to Feb. 18, 1957		5 650
Feb. 19, 1957 to Feb. 25, 1957		5 661
Feb. 26, 1957 to March 4, 1957		5 663
March 5, 1957 to July 8, 1957		5 671
July 9, 1957 to Aug. 4, 1958		5 96
Aug. 5, 1958 to Aug. 11, 1958		6 13
Aug. 12, 1958 to Sept. 8, 1958		6 18
Sept. 9, 1958 to Dec. 31, 1960		6.19
		M - 8 01

CANADIAN STEEL CAPACITY

Ingot Capacity and Operating Rates

	Steel Ingot Capacity	Steel Inget Output	Percent o Capacity
1942	3,172,000	2,942,921	92.7
1943	3,257,500	2,848,235	87.4
1944	3,338,200	2,878,407	86.2
1945	3,358,600	2,767,206	81.7
1946	3,358,600	2.253.437	67.0
1947	3.245.000	2.854.532	87.9
1948	3,490,000	3,089,027	88.5
1949	3,598,000	3,089,368	84.1
1950	3,672,500	3,298,068	89.8
1951	3,630,900	3,446,125	94.9
1952	3,630,900	3,578,106	98.5
1953	4,302,800	4.009,813	93.1
1954	4,657,500	3,113,822	8.88
1955	4,883,000	4,441,743	90.9
1956	5,504,000	5,185,227	94.2
1957	5,504,000	4,924,133	89.4
1958	6,313,000	4,254,607	67.3
1959	6,719,000	5,817,012	92.1
1960*	6,719,000	5,790,000	86.1

^{*} Estimated. Source: Dominion Bureau of Statistics.

CANADIAN STEEL OUTPUT

Ingots and Steel for Castings, Net Tons

			Total Steel Ingots
	Ingots	Castings	and Castings
1933	441.346	17,830	459,176
1934	827.041	23,116	850,157
1935	1.016.814	35,123	1.051.937
1936	1.211.334	38.337	1,249,671
1937	1,496,575	74.652	1.571.137
1938	1.238.078	56,636	1,294,714
1939	1,286,056	60,997	1.327.053
1940	2,177,973	77,899	2.255.872
1941	2,578,063	123,250	2.701.313
1942	2,942,921	178,440	3.121.361
1943	2,848,235	148,743	2,996,978
1944	2,878,407	146,003	3.024.410
1945	2,747,206	134,117	2.881.323
1946	2,253,437	81,194	2,334,631
1947	2,854,532	90.634	2,945,166
1948	3,089,027	112,629	3,201,656
1949	3.089.368	97,562	3,186,930
1950	3,298,068	86.063	3.381.131
1951	3,446,125	121,236	3,567,361
1952	3,578,106	122,037	3,700,143
1953	4.009,813	105,656	4.115,469
1954	3.113.882	80,300	3,194,122
1955	4,441,743	87,658	4,529,401
1956	5,188,227	120,578	5,305,805
1957	4.924.133	113,731	5,037,864
1958	4,254,607	90,684	4,345,291
1959	5,817,012	104,716	5,921,728
1960°	5,791,000	99,000	5,890,000

^{*} Estimated. Source: Dominion Bureau of Statistics.

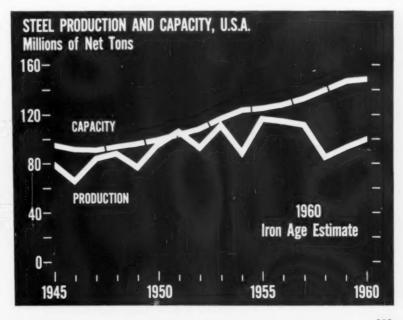
STEEL CAPACITY, PRODUCTION AND RATES

Ingots and Steel for Castings, Net Tons

		Openhe	arth	Besser	ner	Electr	ic*	Tota	1
	Total Capacity	Production	Percent of Total Output	Production	Percent of Total Output	Production	Percent of Total Output	Production	Percent of Capacity
1959	133,459,150 128,363,090	88,600,000 83,533,335; 75,879,394 101,657,776 102,840,585 105,359,417	89.3 89.3 89.1 90.2 89.2 90.0	1,500,000 1,380,283 1,395,985 2,475,138 3,227,997 3,319,517	1.5 1.5 1.6 2.2 2.8 2.8	9,100,000 8,532,514 7,979,506 8,582,082 9,147,567 8,357,151	9.2 9.2 9.3 7.6 8.0 7.2	99,200,000† 93,446,132 85,254,885 112,714,996 115,216,149 117,036,085	66.7 63.3 60.6 84.5 89.3
1954 1953 1952 1951		80,327,494 100,473,823 82,846,439 93,166,518 86,262,509	91.0 90.0 88.9 88.6 89.1	2,548,104 3,855,705 3,523,677 4,890,946 4,534,558	2.9 3.5 3.8 4.6 4.7	5,436,054 7,280,191 6,797,923 7,142,384 6,039,008	6.1 6.5 7.3 6.8 6.2	88,311,652 111,609,719 93,168,039 105,199,848 96,836,075	71.0 94.9 85.8 100.9 96.9
1949 1948 1947 1946	91,241,250 91,890,560	70,248,803 79,340,157 76,873,793 60,711,963 71,939,602	90.1 89.5 90.5 91.2 90.3	3,946,656 4,243,172 4,232,543 3,327,737 4,305,318	5.1 4.8 5.0 5.0 5.4	3,782,717 5,057,141 3,787,785 2,563,024 3,456,728	4.8 5.7 4.5 3.8 4.3	77.978.176 88.640.470 84.894.071 66.602.724 79.701.648	81. 94. 93.1 72.1 83.1
1944 1943 1942 1941	90,589,190 88,886,550	80,363,953 78,621,804 76,501,957 74,389,619 61,573,083	89.7 88.5 88.9 89.8 91.9	5,039,923 5,625,492 5,553,424 5,578,071 3,708,573	5.6 6.3 6.5 6.7 5.6	4,237,724 4,589,216 3,976,550 2,871,569 1,701,030	4.7 5.2 4.6 3.5 2.5	89,641,600 88,836,512 86,031,931 82,839,259 66,982,686	95. 98. 96. 97. 82.
1939 1938 1937 1936 1935	80,158,638 78,148,374	48.409.800 29,080,016 51,824,979 48,760,463 34,401,280	91.7 91.6 91.5 91.2 90.1	3,358,916 2,106,340 3,863,918 3,873,472 3,175,235	6.4 6.6 6.8 7.2 8.3	1,029,998 565,634 948,048 886,064 607,190	1.9 1.8 1.7 1.6 1.6	52,798,714 31,751,990 56,636,945 53,499,999 38,183,705	64.1 39.72.1 68.48.1
1934 1933 1932 1931	78,614,403 78,780,913	26,354,838 22,827,473 13,336,210 25,210,714	90.3 87.7 87.0 86.8	2,421,840 2,720,246 1,715,925 3,386,259	8.3 10.5 11.2 11.6	405,246 472,510 270,766 461,988	1.4 1.8 1.8 1.6	29,181,924 26,020,229 15,322,901 29,058,961	37. 33. 19. 37.

^{*} Includes very smal Itonnages of crucible steel. ‡ Includes 1,864,338 tons of oxygen-made steel.

† IRON AGE Estimate. Source: American Iron & Steel Institute



Monthly data on U.S. production of openhearth, bessemer and electric furnace ingots . . . Round-up of world steel output.

WORLD STEEL PRODUCTION

Ingots and Steel for Castings, Thousands of Net Tons

Compiled by THE IRON AGE from the United Nations Bulletin of Statistics, Chambre Syndicate de la Siderurgie Française, British Iron and Steel Federation and the American Iron and Steel Institute.

	1960°	19591	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949
Australia	4.000	3,696	3.532	3,373	2.914	3,460	2.117	2,296	1.835	1,606	1.596	1.309
Austria	3,400	2,769	2,638	2,766	2,290	2,009	1,822	1,427	1,165	1,133	1.044	920
Belgium	8,100	7.092	6,626	6,922	7,028	6,403	5,522	4,997	5,621	5,590	4,155	4,242
Brazil	2,100	2,057	1,764	1,590	1,504	1,286	1,288	1,109	985	930	834	677
Canada	6,100	5,922	4.359	5,040	5,306	4,529	3,192	4,110	3,703	3,567	3,384	3,186
China.	20,200	14,716	8.818	5,499	5.024	3,142	2.397	1.150				
Czechoslovakia	7,700	6,764	6,074	5,622	5,382	5,401	4,884	4,883	3,944	3,651	3,190	2,756
France	18,900	16,775	16,111	15,546	14,770	13,880	11,319	11,023	11,979	10,842	9,537	10.086
Ger- West	33,600	28,464	25,117	27,014	25,561	23,518	19,221	16,997	17,423	14,888	13,3613	10,0903
many East.	4,000	4,083	3,825	3,203	3,020	2,756	2,486	2,666	2,087	1,711		1.00
Hungary	2,100	1,913	1,793	1,411	1,571	1,764	1,644	1.653	1,539	1,360	1,100	882
India	3,400	2,720	2,031	1,915	1,947	1,909	1,882	1,691	1,768	1,680	1,610	1,517
ftaly	9,000	7,454	6,913	7,482	6.512	5,947	4,638	3,858	3,897	3,362	2,583	2,265
Japan	22,400	18,330	13,358	13,854	12,243	10,370	8,523	8,445	7,703	7,167	5,332	3,352
Luxembourg	4,500	4,038	3,724	3,853	3,809	3,555	3,118	2,931	3,309	3,391	2,702	2,507
Mexico	1,400	1,212	1,090	683	648	579	515	504	561	500	390	380
Netherlands	2,100	1,841	1,585	1.299	1,159	1,074	1.023	948	755	609		
Poland	7,000	6,790	6,207	5,846	5,527	4,894	4,370	3,965	3,509	3,078	2,750	2,539
Rumania	1,700	1,564	1,030	941	862	843	693	793	769	720	2555	2503
Saar	4,200	3,983	3,814	3,797	3,719	3,849	3,093	2,959	3,112	2,869	2,092	1,938
South Africa1	2,200	2,026	1,952	1,848	1,708	1,681	1,523	1,366	1,326	1,045	830	699
Spain	2,200	1,995	1,720	1,456	1,370	1,337	1,209	985	1,000	902	900	793
Sweden ²	3,300	3,130	2,649	2,733	2,646	2,342	2,062	1,969	1,836	1,658	1,587	1.511
Un. Kingdom	27,100	22,609	21,914	24,304	23,138	22,166	20,742	19,723	18,388	17,516	18,240	17,256
U. S. S. R.	71,700	66,084	60,482	56,325	54,443	49,936	45,203	41,800	36,029	34,500	29,800	23,600
United States	99,200	93,446	85,255	112,717	115,216	117,036	88,312	111,610	93,168	105,200	96,836	77,978
Yugoslavia	1,600	1,432	1,234	1,154	977	889	679	568	488	470		
Others	4,000	3,843	3,385	2,868	2,380	1,816	1,548	2,280	1,524		* -0 A	

Totals....., 377,200 338,748 299,000 321,061 312,654 297,011 245,013 258,706 229,423 229,945 204,348 173,386

WORLD STEEL DATA

Data in the table at left are based on an extensive Iron Age study. Assisting in the study were the Intelligence Dept. of the British Iron & Steel Federation Chambre Syndicate de la Siderugie Française, United Nations, American Iron and Steel Institute and Iron Age correspondents throughout the world. Though based on the best available information, the accuracy of Iron Curtain steel data is naturally not of the same order as that of the free world.

U. S. MONTHLY STEEL INGOT PRODUCTION

Openhearth, Bessemer and Electric Furnace Ingots and Steel for Castings, Net Tons; U. S. Only

Jan. Feh. Mar. Apr. May June	1935 3,279,473 3,169,909 3,273,910 3,017,177 3,009,425 2,580,771	1936 3,474,353 3,379,587 3,810,436 4,494,782 4,614,529 4,543,888	1937 5,398,328 5,050,824 5,970,247 5,801,540 5,894,260 4,787,710	1938 1,984,815 1,942,795 2,293,884 2,196,413 2,661,169 1,868,848	1939 3,663,004 3,448,120 3,929,387 3,431,600 3,372,636 3,806,729	1940 5,764,723 4,525,797 4,389,183 4,100,474 4,967,782 5,657,443	1941 6,928,083 6,237,900 7,131,641 6,756,949 7,053,238 6,800,730	1942 7,112,106 6,512,535 7,392,111 7,121,291 7,382,578 7,015,302	1943 7,424,522 8,824,604 7,674,578 7,373,703 7,549,691 7,039,353	1944 7,592,603 7,194,009 7,826,257 7,593,688 7,702,576 7,234,257	1945 7,204,312 6,652,765 7,705,929 2,289,887 7,449,667 6,840,522	1946 3,872,887 1,392,682 6,508,784 5,801,195 4,072,620 5,625,773	1947 7,222,612 6,430,401 7,318,974 7,051,842 7,339,014 6,977,714
July Aug. Sept. Oct. Nov. Dec.	2,591,240 3,331,770 3,227,876 3,590,945 3,599,687 3,511,702	4,473,940 4,782,442 4,744,841 5,182,430 4,941,014 5,056,843	5,212,832 5,580,683 4,907,592 3,881,819 2,464,793 1,685,273	2,259,677 2,903,805 3,029,736 3,554,912 4,072,676 3,751,253	3,648,639 4,341,726 4,881,601 6,223,126 6,292,322 5,958,893	5,724,625 6,186,383 6,056,246 6,644,542 6,469,107 6,495,357	6,821,682 7,000,957 6,819,246 7,242,683 6,969,987 7,163,999	7,144,958 7,227,656 7,057,519 7,579,514 7,179,812 7,304,540	7,407,876 7,586,464 7,514,339 7,614,117 7,371,975 7,255,144	7,948,387 7,498,913 7,235,111 7,620,885 7,278,719 7,336,170	6,985,571 5,735,317 5,982,475 5,596,776 6,200,466 6,057,937	6,618,683 6,924,522 6,555,566 6,951,742 6,457,771 5,760,501	6,578,685 6,991,152 6,797,457 7,570,152 7,242,427 7,378,641
Total	38,183,705	53,449,085	56,635,899	31,751,983	52,797,783	66,981,662	82,927,557	86,029,921	88,836,366	89,641,575	79,701,624	68,602,708	84,894,071
Jan. Feb. Mar. Apr. May June	1948 7,480,878 6,948,017 7,616,770 6,224,487 7,580,642 7,265,249	1949 8,197,390 7,493,942 8,401,796 7,796,165 7,598,990 6,504,656	1950 7,941,797 6,803,032 7,497,822 8,224,504 8,564,207 8,143,230	1951 8,848,466 7,770,407 7,076,630 8,845,979 9,100,155 8,662,348	1952 9,136,117 8,657,210 9,404,191 7,991,142 8,204,596 1,639,491	1953 9,897,962 8,932,779 10,168,098 9,545,538 9,997,080 9,404,479	1954 7,951,486 7,083,237 7,289,600 6,970,937 7,472,738 7,383,634	1955 8,837,736 8,496,934 9,981,754 9,815,095 10,328,316 9,746,487	1956 10,828,231 10,118,995 10,924,788 10,536,121 10,490,376 9,721,436	1057 11,008,762 9,987,206 10,589,074 9,814,780 9,792,323 9,391,402	1958 6,753,912 5,782,323 6,254,622 5,532,991 6,301,159 7,127,480	1959 9,317,385 9,602,938 11,567,745 11,281,920 11,600,581 10,907,634	1960 12,049,404 11,126,806 11,564,683 9,777,857 8,830,472 7,404,873
July Aug. Sept. Oct. Nov. Dec.	7,075,517 7,446,834 7,424,844 7,996,895 7,797,558 7,780,779	5,784,831 6,722,771 6,597,935 928,347 4,223,129 7,728,224	8,082,922 8,242,174 8,204,997 8,752,686 8,023,393 8,355,311	8,684,495 8,739,095 8,660,357 9,121,886 8,799,352 8,890,678	1,626,958 8,498,687 9,062,105 9,806,830 9,438,886 9,690,162	9,275,673 9,405,580 8,883,428 9,462,722 8,690,052 7,948,328	6,627,597 6,666,907 6,807,483 7,701,553 8,089,427 8,287,073	9,100,946 9,594,545 9,882,325 10,501,050 10,247,398 10,503,519	1,622,163 8,122,597 10,422,659 11,048,513 10,555,500 10,837,545	8,908,732 9,233,890 8,977,906 9,197,717 8,392,919 7,420,285	6,420,405 7,286,003 7,610,372 8,839,778 8,569,318 8,710,522	5,227,129 1,439,277 1,535,017 1,704,533 7,267,607 11,989,319	6,350,924 6,838,000 6,458,421 6,868,380 6,167,000† 5,800,000°
Total	88,640,470	77,978,176	96,836,075	105,199,846	93,153,375	111,609,719	88,311,652	117,036,085	115,216,149	112,714,996	85,254,885	93,446,132	99,200,000°

* Estimate. † Preliminary.

Source: American Iron and Steel Institute.

^{*} Estimated. † Revised. 1 Ingots only. 2 Ingots and finished castings. 3 British, French and United States Zones.

Financial analysis of steel industry . . . Twenty-eight steel producers covered represent 93 pct of U.S. ingot capacity.

FINANCIAL ANALYSIS OF THE STEEL INDUSTRY

For years 1955 through 1959. Data Cover 28 Companies Representing 93 Pct of U. S. Ingot Capacity

COMPANY	Year	Ingot Capacity Net Tons	Ingot Production Net Tons	Percent of Capacity Operated	Steel Shipments Net Tons	Net Sales and Operating Revenue	Provision for Federal Income Taxes	Net Income	Net Income Percent of Sales	Per Commen Share	Invested Capital
U. S. Steel Corp.	1959	41,916,000	24,445,353	58.3	18,093,747	\$2,643,040,035	\$233,000,000	\$254,563,401	7.0	\$4.25	\$3,638,204,829
	1958	40,212,000	23,818,889	59.23	16,992,305	3,472,177,091	285,000,000	301,558,231	8.7	5.13	3,601,550,892
	1957	39,582,000	33,738,000	85.2	23,414,000	4,413,806,173	406,000,000	419,406,956	9.5	7.33	3,214,366,449
	1956	39,582,000	33,402,000	85.2	23,911,000	4,228,877,241	331,000,000	348,098,916	8.2	6.01	3,008,996,483
	1955	38,877,000	35,309,000	90.8	25,506,000	4,097,680,287	386,000,000	370,099,353	9.0	6.44	2,868,655,585
Bethlehem Steel Corp.	1959	23,000,000	14,257,356	62.0	10,267,778	2,079,082,467	123,000,000	117,235,859	5.6	2.44	1,791,793,953
	1958	23,000,000	13,393,034	58.2	9,686,228	2,024,282,732	131,000,000	137,741,946	6.8	2.91	1,786,505,120
	1957	20,500,000	19,123,201	93.3	13,535,705	2,624,913,123	175,000,000	191,025,933	7.3	4.13	1,758,004,876
	1956	20,000,000	18,322,308	91.6	13,198,783	2,343,478,150	147,000,000	161,411,625	6.9	15.33	1,608,356,409
	1955	19,100,000	18,820,912	98.5	13,553,823	2,114,599,636	181,000,000	180,191,708	8.5	18.09	1,522,975,045
Republic Steel Corp	1959	12.742.000	7,504,624	58.9	5,446,342	1,076,832,407	52,800,000	53,890,116	5.0	3.43	816.885,556
	1958	12.242.000	6,430,283	52.5	4,463,595	910,382,817	60,500,000	61,921,680	6.8	3.96	811.474,121
	1957	11.047.000	8,484,615	76.8	6,211,485	1,227,257,507	89,600,000	85,014,422	6.9	5.45	773.190,575
	1956	10.202.000	9,348,898	91.1	6,783,307	1,244,214,346	94,700,000	90,406,665	7.3	5.83	698.248,994
	1955	10.262.000	9,680,121	97.1	6,988,782	1,188,559,765	84,000,000	86,271,491	7.3	5.59	650,126,815
Jones & Laughlin Steel Corp	1959	8,000,000	4,896,000	61	3,869,000	765,672,000	27,594,000	29,485,000	3.9	3.58	673,966,000
	1958	7,500,000	4,947,800	66.0	3,357,000	654,060,000	18,090,000	23,198,000	3.6	2.79	658,380,000
	1957	6,900,000	6,048,000	88.0	4,272,000	837,568,000	39,901,000	45,452,000	5.4	5.65	647,394,000
	1956	6,166,500	5,997,000	97.0	4,341,000	742,642,000	39,380,000	45,122,000	6.1	6.63	581,426,000
	1955	6,166,500	6,190,000	100.0	4,418,000	696,538,000	46,500,000	50,104,000	7.2	7.73	526,212,000
National Steel Corp.	1959 1958 1957 1958 1955	7,000,000 6,800,000 6,200,000 6,000,000 6,000,000	5,331,496 4,476,000 5,326,425	76 66.0 86.0	4,433,957	736,978,650 539,957,294 640,967,342 664,251,090 622,018,919	\$8,250,000 35,000,000 43,550,000 47,000,000 48,275,000	54,897,360 35,827,414 45,518,884 52,502,422 48,289,453	7.45 6.64 7.1 7.9 7.8	7.28 4.80 6.13 7.09 8.54	682,132,129 566,889,286 551,004,819 532,312,349 452,911,98
Youngstown Sheet & Tube Co	1959	6,750,000	4,100,717	60.8	3,008,183	617,889,289	30,600,000	30,956,040	5.1	8.90	571,273,041
	1958	6,500,000	3,659,482	56.3	2,542,714	506,959,574	20,170,000	21,501,320	4.3	6.23	553,400,772
	1957	6,240,000	5,137,834	82.3	3,593,375	679,885,073	39,488,000	42,508,579	6.25	12.35	531,846,120
	1956	5,750,000	5,406,016	94.0	3,839,224	684,041,021	37,329,000	43,174,587	6.31	12.62	498,364,512
	1955	5,520,000	5,571,556	100.9	3,944,492	626,232,840	41,867,500	41,701,140	6.8	12.34	462,890,77
Inland Steel Co	1959	6,500,000	4,227,317	65.0	3.162,272	713,215,002	39,150,000	48,354,030	6.4	2.77	677,698,16
	1958	5,800,000	4,714,904	81.3	3.384,209	661,253,596	42,440,000	47,869,042	7.3	8.32	604,801,130
	1957	5,500,000	5,502,000	100.0	4.041,130	772,380,683	60,555,000	58,876,875	7.7	10.34	582,774,29
	1956	5,200,000	4,915,576	94.5	3.852,719	731,767,767	55,142,000	52,998,726	7.3	9.43	497,757,690
	1955	5,000,000	5,189,509	103.8	3.954,567	663,317,374	53,050,000	52,466,098	8.0	9.52	416,415,10
Armco Steel Corp.	1959	6,400,000	5,128,907	80.1	4,103,543	1,022,428,742	75,862,114	77,064,249	7.5	5.21	845,087,15
	1958	6,294,200	4,506,127	70.5	3,640,620	867,390,909	55,860,180	57,512,151	6.63	3.89	744,472,28
	1957	5,950,000	5,406,646	90.9	3,807,723	776,736,401	54,521,286	55,044,509	7.09	4.59	603,150,80
	1956	5,150,000	5,220,147	101.4	3,936,105	761,800,102	63,290,322	65,593,182	8.61	6.03	480,309,79
	1955	4,950,000	5,099,905	103.0	4,003,532	692,683,234	66,613,787	64,350,609	9.3	6.05	444,015,75
Kaiser Steel Corp	1959 1958 1957 1956 1955	2,933,000 1,536,000 1,536,000 1,536,000 1,536,000	1.537.802 1.466.278 1.590.322 1.617.681 1.432.742	52.4 95.5 103.5 105.3 93.3	1,056,727 940,500 1,043,620 1,140,776 929,556	202,126,940 181,385,288 208,619,403 201,489,824 136,148,919	70,000 2,175,000 9,300,000 12,055,000	-7,401,076 5,422,271 21,438,507 23,571,852 5,471,236	-3.7 3.0 10.3 11.7 4.2	-3.26 0.76 5.91 6.57 1.08	384,438,42 407,970,26 373,126,51 245,177,55 245,329,44
Colorado Fuel & Iron Corp	1959	2,836,500	1,682,541	59.32	1,341,549	280,288,103	3,723,600	4,364,554	1.56	1.04	227,322,68
	1958	2,836,500	1,706,308	60.16	1,355,084	276,163,902	2,468,500	2,147,223	0.78	0.47	195,728,67
	1957	2,799,500	2,163,594	77.3	1,815,406	340,755,160	14,926,000	14,236,851	4.18	4.04	197,115,76
	1956	2,471,500	2,401,231	97.16	2,134,490	341,630,224	16,891,800	16,662,653	4.9	4.74	189,184,65
	1955	2,471,500	1,936,402	78.35	1,627,587	257,543,050	10,681,800	10,887,163	4.2	3.79	170,325,36
Wheeling Steel Corp	.1959 1958 1957 1956 1955	2,400,000 2,400,000 2,200,000 2,130,000 2,130,000	1,397,002 1,580,214 1,828,534 1,994,745 2,057,288	58.2 65.8 83.1 93.7 96.6	1,139,036 1,119,363	211,633,718 221,009,355 249,756,955 259,554,918 249,455,016	4,209,000 6,954,000 10,116,000 18,630,000 18,480,000	7,033,050 8,899,267 12,077,696 17,672,276 17,295,711	3.32 4.03 4.84 6.81 6.9	2.53 3.69 5.32 8.20 8.12	238,567,84 237,440,67 237,041,08 236,452,19 229,796,66
McLouth Steel Corp.	1959 1958 1957 1956 1955	2,040,000 1,574,000 1,574,000 1,380,000 1,200,000	1,215,693 1,396,103 1,534,240 1,372,592	59.59 88.70 97.5 99.5	966,967 1,047,029 1,122,335 1,092,877	177,446,839 171,590,704 179,458,165 163,906,619 144,987,476	5,600,000 2,430,000 5,562,000 9,110,000 7,375,000	10,058,232 9,998,374 9,409,977 8,806,258 8,148,342	5.67 5.83 5.2 5.4 5.6	5.32 5.65 5.37 5.01 5.66	159,983,90 162,564,48 153,069,76 123,232,92 127,716,52
Sharon Steel Corp.	1959 1958 1957 1956 1955	1,961,000 1,989,000 1,856,000 1,763,000 1,550,000	973,844 779,281 1,204,283 1,508,660 1,528,686	52.3 39.78 63.5 85.6 98.6	647,460 517,277 856,503 1,126,612 1,092,593	119,760,979 99,970,977 151,651,824 180,044,408 173,095,949	1,787,000 -190,000 3,606,000 6,473,000 7,840,000	224,942 4,046,773 6,905,539	1.79 0.22 2.7 3.8 4.6	1.94 0.20 3.68 6.28 7.26	90,803,08 90,264,44 92,062,96 82,716,19 73,096,95
Pittsburgh Steel Co	1959 1958 1957 1956 1955	1,560,000 1,416,000 1,320,000 1,320,000 1,320,000	935,411 955,593 1,223,534 1,139,882 1,303,503	60.0 61.3 91.0 86.4 98.8	794,061 725,653 1,018,756 1,077,610 1,132,437	150,647,405 134,475,314 183,260,331 179,133,961 177,707,556	579,000 -1,418,000 1,516,000 3,404,000 4,372,000	-865,593 4,155,000 6,225,000	.66 -0.65 2.28 3.49 4.3	1.45 -1.37 1.80 3.24 4.31	116,331,11 120,019,20 124,195,83 125,912,96 118,397,22
Granite City Steel Company	1959 1958 1957 1956 1955	1,440,000 1,200,000 1,200,000 1,080,000 1,080,000	1,307,970 1,106,556 1,116,698 1,151,620 1,091,389	90.8 87.8 93.1 107.0 101.0	1,126,328 879,500 894,052 1,057,932 961,101	164,371,219 125,272,603 123,763,490 137,131,233 116,293,657	17,230,000 10,127,000 10,829,000 15,800,000 13,703,700	9,373,580 9,984,451 15,109,411	9.8 7.5 8.1 11.0	7.53 4.36 4.64 7.04 6.05	134,311,59 123,871,07 118,827,37 113,844,91 102,436,34

Financial analysis of steel industry showing capacity, sales earnings data, shipments, production, etc., by company.

FINANCIAL ANALYSIS (Continued)

COMPANY	Vear	Ingot Capacity Net Tons	Ingot Production Net Tons	Percent of Capacity Operated	Steel Shipments Net Tons	Net Sales and Operating Revenue	Provision for Federal Income Taxes	Net Income	Net Income Percent of Sales	Earnings Per Common Share	Invested Capital
Crucible Steel Co. of America	1959 1958 1957 1956 1955	1,431,180 1,424,530 1,423,400 1,423,400 1,351,400	886,726 710,823	62.0 49.9	579,488 459,311	\$219, 229, 082 186, 363, 233 235, 938, 306 263, 922, 898 237, 715, 380	\$4,900,000 2,315,600 5,630,000 12,910,000 15,570,000	\$6,106,443 4,274,793 6,543,594 12,767,625 13,208,662	2.8 2.3 2.8 4.8 5.6	\$1.50 1.13 1.73 7.02 8.05	\$153,585,467 142,135,179 141,257,392 140,460,520 128,847,921
Lukens Steel Co.	1959	930,000	568,244	61.1	377,624	83,178,393	2,520,000	2,598,496	3.1	2.72	73.028.757
	1958	750,000	602,996	80.4	404,770	99,256,110	4,255,000	4,181,986	4.2	4.38	63.776.747
	1957	750,000	758,212	101.1	566,521	130,473,207	11,687,000	10,119,998	7.8	10.61	43.052.618
	1956	750,000	703,434	93.8	512,735	105,173,925	7,675,000	7,504,889	7.1	23.60	39.593.684
	1955	750,000	691,444	92.2	490,569	79,307,572	2,400,000	1,731,238	2.2	5.44	34.334.613
Detroit Steel Corp.	1959	900,000	824,757	92	719,811	117,047,887	11,910,000	11,939,492	10.2	3.90	86,304,614
	1958	1,500,000	447,613	30.0	386,093	61,781,686	1,250,000	1,153,692	1.9	0.31	81,723,218
	1957	1,500,000	562,477	37.0	480,911	82,458,616	3,346,000	3,004,382	3.6	0.90	84,844,546
	1956	1,290,000	1,032,237	80.0	909,261	123,616,057	9,015,000	8,747,092	7.1	2.78	87,696,369
	1955	1,290,000	888,443	68.9	787,788	101,803,010	6,715,966	6,317,860	6.2	2.07	85,693,209
Allegheny Ludium Steel Corp.	1959	864,200	460,785	53.3	296,126	232,559,479	11,960,000	11,290,664	4.85	2.92	153.210.141
	1958	864,200	418,254	48.4	270,213	202,572,808	6,174,000	5,844,803	2.89	1.52	141.392.570
	1957	864,200	495,280	57.3	352,989	267,647,586	13,441,000	11,651,851	4.35	3.02	144.990.974
	1956	864,200	666,918	77.2	453,822	287,078,052	16,867,000	15,261,090	5.32	4.04	140.683.981
	1955	864,200	683,195	79.1	464,231	255,587,054	16,554,000	14,985,660	5.9	8.25	121.125.921
Phoenix Steel Corp.	1959 1958 1957 1956 1955	846,760 846,760 846,760 893,000 893,000	556,031 226,110 585,993 732,600 520,900	65.67 26.70 69.0 82.0 58.3		60,615,789 27,614,634 83,885,112 119,536,637 75,084,700	2,475,000 -2,185,396 3,536,000 8,118,951 995,255	2,108,754 -1,986,545 3,062,998 7,009,956 655,319	3.48 -7.12 3.65 5.86 0.9	2.03 -1.90 0.74 1.98 0.20	32,929,710 32,168,100 35,575,755 37,808,634 22,822,552
Northwestern Steel & Wire Corp	.1959	825.000	638,203	77.4	538,009	83,781,108	9,200,000	8,450,321	10.1	3.38	44,158,600
	1958	825,000	473,561	57.4	380,518	60,468,595	5,840,000	5,049,890	8.4	2.02	39,205,142
	1957	825,000	703,752	85.3	548,419	78,105,122	6,030,000	5,225,418	6.7	2.09	36,025,800
	1956	825,000	692,326	83.9	585,816	74,157,804	5,760,000	5,076,959	6.8	2.07	32,971,850
	1955	825,000	502,443	60.9	391,675	51,403,405	4,610,000	4,131,969	8.0	5.05	29,585,467
Alan Wood Steel Co.	1959	800,000	740,254	92.53	517,985	81,074,208	4,118,000	4,855,885	5.99	6.63	37,329,725
	1958	800,000	505,341	63.17	335,571	54,163,265	997,000	2,109,203	3.89	2.68	38,227,292
	1957	800,000	655,536	81.9	437,819	67,889,893	1,047,000	2,054,046	3.0	2.60	38,330,232
	1956	625,000	713,859	109.1	495,098	69,330,353	2,024,000	3,095,727	4.5	4.04	36,653,835
	1955	625,000	665,908	106.5	462,046	58,375,609	1,619,000	2,551,530	4.4	3.32	35,951,285
Lone Star Steel Co.	1959 1958 1957 1956	800,000 660,000 550,000 550,000	751,477 384,475 666,853 629,579	93.93 58.3 121.2 114.4	192,000 469,228 485,269	112,944,477 45,804,182 95,340,258 88,650,577	14,598,000 None 11,570,000 11,000,000	14,175,678 1,064,697 11,329,508 10,151,363	12.55 2.0 11.9 11.5	3.97 0.33 3.90 3.84	102,069,033 99,899,714 103,203,078 100,373,570
Copperweld Steel Company	1959 1958 1957 1956 1955	660,000 660,000 660,000 660,000 618,380				138,364,827 93,526,153 121,094,351 100,541,926 78,490,150	6,336,000 2,175,000 2,500,000 4,220,000 2,990,000	5,972,457 2,081,114 2,769,855 3,440,872 2,367,459	4.3 2.2 2.3 3.4 3.0	5.00 1.76 2.41 4.08 2.81	66,327,363 56,065,725 55,480,326 40,267,983 35,574,888
Laciede Steel Co.	1959	600,000	600.384	100.06	482,867	87,671,707	6,400,000	5,632,652	6.42	27.31	35,920,405
	1958	600,000	454.693	75.7	350,324	63,159,247	4,075,000	3,704,251	5.86	17.96	32,137,753
	1957	500,000	452.005	86.9	352,526	62,226,543	4,675,000	3,838,646	6.17	18.61	30,283,503
	1956	500,000	505.575	101.1	398,181	66,509,030	4,575,000	4,086,071	6.14	19.81	26,832,561
	1955	500,000	473.708	94.7	386,408	58,191,338	4,700,000	4,047,053	7.0	19.62	24,658,700
Keystone Steel & Wire Co.	1959	600,000	502,271	83.71	400,137	82,838,545	9,256,741	8,911,383	10.76	4.75	46,455,964
	1958	450,000	366,793	81.51	291,734	61,198,258	6,992,003	6,736,519	11.01	3.59	41,294,527
	1957	450,000	395,236	87.8	290,354	59,739,437	6,393,924	6,498,163	10.88	3.47	38,308,007
	1956	450,000	438,364	97.41	353,019	66,629,700	7,993,443	8,013,050	12.03	4.27	35,559,840
	1955	425,000	416,090	97.90	344,414	82,020,363	8,830,268	8,768,519	14.1	4.68	31,296,798
Continental Steel Corp.	1959	420,000	388,365	92.5	311.340	57,083,835	6,275,000	5,657,052	9.91	10.95	30 .703 .300
	1958	420,000	308,248	73.4	253.835	46,798,182	4,400,000	3,887,634	8.31	7.53	27 .570 .05
	1957	420,000	338,508	80.6	231.880	42,657,749	3,130,000	2,756,655	6.46	5.34	25 .689 .82
	1956	394,000	368,059	93.4	272.996	46,703,332	2,810,000	2,793,574	5.98	5.57	24 .135 .91
	1955	394,000	384,380	97.6	285.972	44,881,747	2,760,000	3,022,143	6.7	6.02	22 .921 .08
Atlantic Steel Co	1959	276,000	217,744	78.89	170,288	29,433,860	1,635,000	1,349,526	4.6	3.29	13,957,82
	1958	400,000	146,643	36.6	129,046	22,083,434	241,000	353,235	1.60	0.77	12,892,19
GRAND TOTALS	1959 1958 1957 1956 1955	137,231,640 132,208,190 125,043,860 119,410,000 117,257,517	107,000,000	60.6 84.5 89.8	64,500,000 56,800,000 74,300,000 77,300,000 78,800,000	\$13,347,236,972 11,999,934,892 14,904,100,684	712,590,287 992,530,516	\$786,843,242 766,112,120 1,093,416,709 1,044,506,967 1,034,621,961	5.9 6.5 7.3 7.2 7.8	\$3.83 3.62 5.65 6.96 7.16	\$11,924,289,84 11,571,025,63 10,836,555,25 9,790,957,62 9,132,827,14

^{*} Estimated on operating rate.

Steel Prices: Hot and cold rolled sheet and strip, galvanized sheets, tinplate and high-speed tool steel.

COLD-R	OLLED	STRIP				COLD-ROLLED SHEETS				GALVANIZED SHEETST									
Jan. 4. Feb. 4. Mar. 4. Apr. 4. May 4.	h, Cents 149 1950 100 4.20 100 4.21 100 4.21 100 4.21 100 4.21 100 4.21	Per F 1951 4.75 4.75 4.75 4.75 4.75 4.75	1952 4.65 4.65 4.65 4.65 4.65 4.65	1953 5.10 5.10 5.10 5.10 5.10 5.25	1954 5.45 5.45 5.45 5.45 5.45 5.45	Jan	1949 4.00 4.00 4.00 4.00 4.00 4.00 4.00	Cents 1950 4.10 4.10 4.10 4.10 4.10 4.10	Per F 1951 4.35 4.35 4.35 4.35 4.35 4.35	1952 4.35 4.35 4.35 4.35 4.35 4.35	1953 4.575 4.575 4.575 4.575 4.575 4.680	1954 4.775 4.775 4.775 4.775 4.775 4.775 4.775	Jan. Feb. Mar. Apr. May. June	rgh, 1949 4.40 4.40 4.40 4.40 4.40 4.40	Cents 1950 4.40 4.40 4.40 4.40 4.40 4.40	Per F 1951 4.80 4.80 4.80 4.80 4.80 4.80	1952 4.80 4.80 4.80 4.80 4.80 4.80	1953 5.075 5.075 5.075 5.075 5.075 5.075 5.160	1954 5.275 5.275 5.275 5.275 5.275 5.275
Aug. 4 Sept. 4 Oct. 4 Nov. 4	.00 4.21 .00 4.21 .00 4.21 .00 4.21 .00 4.21 .00 4.21 .06 4.75	4.75 4.75 4.75 4.75 4.75 4.75 4.75	4.74 5.10 5.10 5.10 5.10 5.10 4.85	5.45 5.45 5.45 5.45 5.45 5.45 5.29	5.73 5.75 5.75 5.75 5.75 5.75 5.60	July Aug. Sept. Oct. Nov. Dec.	4.00 4.00 4.00 4.00 4.00 4.04 4.04	4.10 4.10 4.10 4.10 4.10 4.35 4.12	4.35 4.35 4.35 4.35 4.35 4.35 4.35	4.395 4.575 4.575 4.575 4.575 4.575 4.449	4.775 4.775 4.775 4.775 4.775 4.775 4.775 4.682	4.939 4.95 4.95 4.95 4.95 4.95 4.862	July Aug. Sept. Oct. Nov. Dec. Average	4.40 4.40 4.40 4.40 4.40 4.40 4.40	4.40 4.40 4.40 4.40 4.40 4.80 4.43	4.80 4.80 4.80 4.80 4.80 4.80	4.855 5.075 5.075 5.075 5.075 5.075 4.919	5.275 5.275 5.275 5.275 5.275 5.275 5.275 5.275	5.439 5.45 5.45 5.45 5.45 5.45 5.362
Jan. 5. Feb. 5 Mar. 5 Apr. 8 May 5	955 1956 .75 6.25 .75 6.25 .75 6.25 .75 6.25 .75 6.25 .75 6.25 .75 6.25	1957 6.85 6.85 6.85 6.85 6.85 6.85	1958 7.170 7.170 7.170 7.170 7.170 7.170	1959 7.425 7.425 7.425 7.425 7.425 7.425	1960 7,425 7,425 7,425 7,425 7,425 7,425 7,425	Jan. Feb. Mar. Apr. May June	4.95 4.95 4.95	1956 5.325 5.325 5.325 5.325 5.325 5.325	1957 5.75 5.75 5.75 5.75 5.75 5.75	1958 6.050 6.050 6.050 6.050 6.050 6.050	1959 6.275 6.275 6.275 6.275 6.275 6.275	1960 6.278 6.278 6.275 6.275 6.275 6.275	Jan. Feb. Mar. Apr. May June	1955 5.45 5.45 5.45 5.45 5.45 5.45	1956 5.85 5.85 5.85 5.85 5.85 5.85	1957 6.30 6.30 6.30 6.30 6.30 6.30	1958 6.600 6.600 6.600 6.600 6.600	1959 6.875 6.875 6.875 6.875 6.875 6.875	1960 6.875 6.875 6.875 6.875 6.875
Aug. 6 Sept. 6 Oct. 6 Nov. 6	.12 6.25 .25 6.61 .25 6.85 .25 6.85 .25 6.85 .25 6.85 .25 6.85	7.17 7.17 7.17 7.17 7.17 7.17 7.17	7.170 7.425 7.425 7.425 7.425 7.425 7.425 7.276	7.425 7.425 7.425 7.425 7.425 7.425 7.425 7.425	7.425 7.425 7.425 7.425 7.425 7.425 7.425 7.425	July Aug. Sept. Oct. Nov. Dec. Average	5.325 5.325 5.325 5.325 5.325	5.325 5.580 5.75 5.75 5.75 5.75 5.75 5.488	6.05 6.05 6.05 6.05 6.05 6.05 5.90	6.275 6.275 6.275 6.275 6.275 6.275 6.143	6.275 6.275 6.275 6.275 6.275 6.275 6.275	6.275 6.275 6.275 6.275 6.275 6.275 6.275	July Aug. Sept. Oct. Nov. Dec. Average			6.60 6.60 6.60 6.60 6.60 6.60 6.45	6.800 6.875 6.875 6.875 6.875 6.875 6.715	6.875 6.875 6.875 6.875 6.875 6.875 6.875	6.875 6.875 6.875 6.875 6.875 6.875
HOT-RO	LLED S	HEET	S			нот-	ROLL	ED ST	RIP				STEEL	PLA	TES				
Jan. 3 Feb. 3 Mar. 3 Apr. 3 May 3	h, Cents 949 1950 .28 3.35 .28 3.35 .28 3.35 .26 3.35 .25 3.35 .25 3.35	Per 1951 3.60 3.60 3.60 3.80 3.80 3.80	Pound 1952 3.60 3.60 3.60 3.60 3.60 3.60	1953 3.775 3.775 3.775 3.775 3.775 3.838	1954 3.925 3.925 3.925 3.925 3.925 3.925 3.925	Jan Feb Mar May June	1949 3.28 3.28 3.28 3.26	Cents 1950 3.25 3.25 3.25 3.25 3.25 3.25 3.25	Per P 1951 3.50 3.50 3.50 3.50 3.50 3.50 3.50	1952 3.50 3.50 3.50 3.50 3.50 3.50	1953 3.725 3.725 3.725 3.725 3.725 3.725 3.810	1954 3.925 3.925 3.925 3.925 3.925 3.925	Jan. Feb. Mar. Apr. May. June	1949 3.50 3.50	1950 3.50 3.50 3.50 3.50 3.50	Per P 1951 3.70 3.70 3.70 3.70 3.70 3.70	1952 3.70 3.70 3.70 3.70 3.70 3.70	1953 3.90 3.90 3.90 3.90 3.90 3.98	195 4.10 4.10 4.10 4.10 4.10
Aug. 3 Sept. 3 Oct. 3 Nov. 3	.25 3.35 .25 3.35 .25 3.35 .25 3.35 .25 3.35 .29 3.60 .26 3.37	3.60 3.60 3.60 3.60 3.60 3.60 3.60	3.635 3.775 3.775 3.775 3.775 3.775 3.676	3.925 3.925 3.925 3.925 3.925 3.925 3.855	4.042 4.05 4.05 4.05 4.05 4.05 4.05 3.987	July Aug. Sept. Oct. Nov. Dec. Average	3.25 3.25 3.25 3.25 3.25	3.25 3.25 3.25 3.25 3.25 3.50 3.50	3.50 3.50 3.50 3.50 3.50 3.50 3.50	3.545 3.725 3.725 3.725 3.725 3.725 3.606	3.925 3.925 3.925 3.925 3.925 3.925 3.832	4.042 4.05 4.05 4.05 4.05 4.05 3.987	July	3.44	3.50 3.50 3.50 3.70	3.70 3.70 3.70 3.70 3.70 3.70 3.70	3.74 3.90 3.90 3.90 3.90 3.90 3.78	4.10 4.10 4.10 4.10 4.10 4.10 4.10	4.2 4.2 4.2 4.2 4.2
Jan. 4.0 Feb. 4.0 Mar. 4.1 May. 4.0 May 4.0 June 4.0	05 4.325 05 4.325 05 4.325 05 4.325	1957 4.675 4.675 4.675 4.675 4.675 4.675	1958 4.925 4.925 4.925 4.925 4.925 4.925	1959 5.100 5.100 5.100 5.100 5.100 5.100	1960 5.100 5.100 5.100 5.100 5.100 5.100	Jan. Feb. Mar. Apr. May June	4.05	1956 4.325 4.325 4.325 4.325 4.325 4.325	1957 4.675 4.675 4.675 4.675 4.675 4.675	1958 4.925 4.925 4.925 4.925 4.925 4.925	1959 5.100 5.100 5.100 5.100 5.100 5.100	1960 5.100 5.100 5.100 5.100 5.100 5.100	Jan. Feb. Mar. Apr. May. June	4.225	4.50 4.50 4.50 4.50	1957 4.85 4.85 4.85 4.85 4.85 4.85	1988 5.12 5.12 5.12 5.12 5.12 5.12	1959 5.30 5.30 5.30 5.30 5.30 5.30	19 5. 5. 5. 5. 5.
Nov. 4.	325 4.535 325 4.675 325 4.675 325 4.675 325 4.675	4.925 4.925 4.925 4.925 4.925 4.925 4.800	4.925 5.100 5.100 5.100 5.100 5.100 4.995	5.100 5.100 5.100 5.100 5.100 5.100 5.100	5.100 5.100 5.100 5.100 5.100 5.100 5.100	July Aug. Sept. Oct. Nov. Dec. Average	4.325 4.325 4.325 4.325 4.325	4.675 4.675	4.925 4.925 4.925 4.925 4.925 4.925 4.80	5.100 5.100 5.100	5.100 5.100 5.100 5.100 5.100 5.100 5.100	5.100 5.100 5.100 5.100 5.100 5.100 5.100	July	4.50 4.50 4.50 4.50 4.50	4.71 4.85 4.85 4.85 4.85	5.10 5.10 5.10 5.10 5.10 5.10 4.98	5.30 5.30 5.30	5.30 5.30 5.30 5.30 5.30 5.30	5.3
HIGH SI	PEED TO	OOL S	TEEL			TINP	LATE	AT	PITTS	BURG	H D	ollars P	er Base Box,	Coke	s1-5	0-lb C	coating	9	
Jan. 152.50 Feb. 148.00 Mar. 148.00 Apr. 148.00 May 148.00	ts Per Pr 1935 19 154.00 160. 154.00 160. 154.00 160. 154.00 160. 154.00 160.	56 195 00 168.0 00 168.0 00 168.0 00 168.0 00 168.0	0 179.50 0 179.00 0 179.50 0 179.50 0 179.50	0 184.00 0 184.00 0 184.00 0 184.00 0 184.00	184.00 184.00 184.00 184.00 184.00	Jan. Feb. Mar. Apr. May June	\$5.75 5.75 5.75 5.75 5.75 5.75 5.75	6.80 6.80 6.70 6.70 6.70	7.75 \$7 7.75 7 7.75 7 7.75 7 7.75 7 7.75 7	7.50 \$8. 7.50 8. 7.50 8. 7.50 8. 7.50 8. 7.50 8.	10 \$8.70 70 8.70 70 8.70 70 8.70 70 8.70 70 8.70	0 8.95 0 8.95 0 8.95 0 8.95 0 8.95 5 8.95	Feb. Mar. Apr. May June July	\$8.95 8.95 8.95 8.95 8.95 8.95	9.05 9.05 9.05 9.05	9.45 \$9.45 \$9.45 \$9.45 \$9.45 \$9.85 10 9.85 10	9.95 \$10. 9.95 10. 1.95 10. 1.95 10. 1.30 10. 1.30 10. 1.30 10.	30 \$10.6 30 10.6 30 10.6 30 10.6 30 10.6 30 10.6 30 10.6	5 \$10. 5 10. 5 10. 5 10. 5 10. 5 10. 5 10.
July 151.00 Aug. 154.00 Sept. 154.00 Oct. 154.00 Nov. 154.00 Dec. 154.00	157.00 160. 160.00 164. 160.00 168. 160.00 168. 160.00 168. 160.00 168. 156.75 163.	00 168.0 80 168.0 00 168.0 00 174.0 00 174.0	00 179.5 00 184.0 00 184.0 00 184.0 00 184.0 00 184.0	0 184.00 0 184.00 0 184.00 0 184.00 0 184.00 0 184.00	184.00 184.00 184.00 184.00 184.00 184.00	Aug. Sept. Oct. Nov. Dec. Average	5.75 5.75 5.75 5.75 5.75	6.80 6.80 6.80 6.80 6.80	7.75 7.75 7.75 7.75 7.75 7.75	7.50 8. 7.50 8. 7.50 8. 7.50 8. 7.50 8. 7.50 8.	70 8.9 70 8.9 70 8.9 70 8.9 70 8.9	5 8.95 5 8.95 5 8.95 5 8.95 5 8.95	Aug. Sept. Oct. Nov. Dec. Average	8.95 8.95 9.05 9.05 9.05	9.05 9.05 9.45 9.45 9.45	9.85 10 9.85 10 9.85 10 9.95 10 9.95 10	0.30 10. 0.30 10. 0.30 10. 0.30 10. 0.30 10.	30 10.6 30 10.6 30 10.6 65 10.6 65 10.6	15 10. 15 10. 15 10. 15 10. 15 10.

Steel Prices: Hot-rolled and cold-finished bars, wire, structurals, rails, pipe and stainless steel sheets.

MERCHANT BARS

At Pittsbu	rgh, (Cents	Per P	ound		
	1949	1950	1951	1952	1953	1954
Jan. Feb. Mar. Apr. May June	3.45 3.45 3.43 3.35 3.35 3.35	3.45 3.45 3.45 3.45 3.45 3.45	3.70 3.70 3.70 3.70 3.70 3.70 3.70	3.70 3.70 3.70 3.70 3.70 3.70 3.70	3.95 3.95 3.95 3.95 3.95 4.04	4.15 4.15 4.15 4.15 4.15 4.15
July Aug. Sept. Oct. Nov. Dec.	3.35 3.35 3.35 3.35 3.39 3.38	3.45 3.45 3.45 3.45 3.45 3.70	3.70 3.70 3.70 3.70 3.70 3.70	3.75 3.95 3.95 3.95 3.95 3.95	4.15 4.15 4.15 4.15 4.15 4.15	4.29 4.30 4.30 4.30 4.30 4.30
Average	3.37	3.47	3.70	3.79	4.08	4.22
Jan. Feb. Mar. Apr. May June	1955 4.30 4.30 4.30 4.30 4.30 4.30	1956 4.65 4.65 4.65 4.65 4.65 4.65	1957 5.075 5.075 5.075 5.075 5.075 5.075	1958 5.425 5.425 5.425 5.425 5.425 5.425	1959 5.675 5.675 5.675 5.675 5.675 5.675	1960 5,675 5,675 5,675 5,675 5,675 5,675
July Aug. Sept. Oct. Nov. Dec.	4.56 4.65 4.65 4.65 4.65 4.65 4.46	4.65 4.905 5.075 5.075 5.075 5.075 4.813	5.425 5.425 5.425 5.425 5.425 5.425 5.425	5.425 5.675 5.675 5.675 5.675 5.675 5.529	5.675 5.675 5.675 5.675 5.675 5.675 5.675	5.675 5.675 5.675 5.675 5.675 5.675 5.675

CAST IRON WATER PIPE

At	New	York,	Net To	on, 6-i	n. and	Large	16	
		1949	1950	1951	1952	1953	1954	
Feb Mar Apr. Ma	y	\$105.95 105.95 105.95 103.98 94.95 94.95	\$94.95 \$ 92.36 91.50 91.50 91.50 91.50	105.00 \$ 109.00 109.00 109.00 109.00 109.00	109.00 \$ 109.00 109.00 109.00 109.00 109.00	114.00 \$ 114.00 114.00 114.00 114.00 114.00	115.50 115.50 115.50 115.50 115.50 115.50	
Sep Oct Nov	t	94.95 94.95 94.95	91.50 91.50 91.50 95.00 95.00 98.00	109.00 109.00 109.00 109.00 109.00 109.00	109.00 109.00 111.50 114.00 114.00 114.00	115.50 115.50 115.50 115.50 115.50 115.50	115.50 115.50 115.50 115.50 115.50 115.50	
1	Average	98.45	92.98 1956†	108.67	110.46	114.75	115.50 1960†	
Feb Ma Apr Ma	y 18	118.90 118.90 118.90 116.50	\$121.50 121.50 121.50 123.50 123.70 125.60	\$131.40 131.70 131.70 131.70 131.70 131.70	\$138.70 138.70 138.70 138.70 138.70 138.70	\$138.70 138.50 138.50 138.50 138.50 138.50	\$138,50 138,50 138,50 138,50 138,50 138,50	
Ser Oct No	y	116.50 121.50 121.50 121.50 121.50		131.70 131.70 138.50 138.50 138.70 138.70	138.70 138.70 138.70 138.50 138.70 138.70	138.50 138.50 138.50 138.50 138.50 138.50	138.50 138.50 138.50 138.50 138.60 138.60	
	Average	a 118.96	126.66	133,94	138.70	138.51	138.52	

† U. S. Pipe and Foundry Index used.

BUTTWELD STEEL PIPE

At Pittsbi	argh, I	Per Ne	et Ton	, Carl	oad L	ots
	1949	1950	1951	1952	1953	1954
Jan. S Feb. Mar. Apr. May June	103.00 \$ 103.00 103.00 103.00 103.00 103.00	108.00 \$ 108.00 108.00 108.00 108.00 108.00	117.00 \$ 117.00 117.00 117.00 117.00 117.00	117.00 \$ 117.00 117.00 117.00 117.00 117.00	124.00 \$ 124.00 124.00 124.00 125.88 132.75	136.50 136.50 136.50 136.50 136.50 136.50
July	103.00 103.00 103.00 103.00 103.00 105.00 103.17	108.00 108.00 108.00 108.00 108.00 117.00 108.75	117.00 117.00 117.00 117.00 117.00 117.00 117.00	118.75 124.00 124.00 124.00 124.00 124.00 120.06	136.50 136.50 136.50 136.50 136.50 136.50 131.14	141.18 141.50 141.50 141.50 141.50 141.50 141.50 138.97
Feb. Mar. Apr.	141.50 141.50 141.50	1958 \$152.00 152.00 152.00 152.00	168.25 168.50 168.50	176.50 176.50 176.50	182.50 182.50 182.50	182.50 182.50 182.50
May June July Aug. Sept.	141.50 141.50 151.75 154.00 154.00	152.00 152.00 152.00 159.20 164.00	168.50 168.50 176.50 176.50 176.50	176.50 176.50 176.50 182.50 182.50	182.50 182.50 182.50 182.50 182.50	182.50 182.50 182.50 182.50 182.50
Oct	154.00 154.00 154.00	164.00 164.00 164.00	176.50 176.50 176.50	182.50 182.50 182.50	.81.50 182.50 182.50	182.50 182.50 182.50

Average 147.56 156.60 171.94 179.00 182.50 182.50 Computed from list discounts; 1-ln. size std., T&C.

MANUFACTURER'S BRIGHT WIRE

At Pittsburgh, Cents Per Pound

	1949	1950	1951	1952	1953	1954	
Jan	4.33	4.50	4.85	4.85	5.225	5.525	
Feb.	4.33	4.50	4.85	4.85	5.225	5.525	
Mar.	4.22	4.50	4.85	4.85	5.225	5.525	
Apr	4.15	4.50	4.85	4.85	5.225	5.525	
May	4.15	4.50	4.85	4.85	5.225	5.525	
June	4.10	4.30	4.00	4.00	2.332	2,323	
July	4.15	4.50	4.85	4.925	5.525	5.735	
Aug.	4.15	4.50	4.85	5.225	5.525	5.75	
Sept.	4.15	4.50	4.85	5.225	5.525	5.75	
Oct.	4.15	4.50	4.85	5.225	5.525	5.75	
Nov.	4.29	4.85	4.85	5.225	5.525	5.75	
		4.53					
Average	4.20	4.33	4.85	5.012	5.386	5.636	
	1968	1956	1957	1958	1959	1960	
Jan.	5.75	6.25	7.20	7.650	8.000	8.000	
Feb.	5.75	6.60	7.20	7,650	8.000	8.000	
Mar.	5.75	6.60	7.20	7.650	8.000	8.000	
Apr	5.75	6.60	7.20	7.650	8.000	8.000	
May	5.75	6.60	7.20	7.650	8.000	8.000	
June	2.72	0.00	1.20	7.000	0.000	0.000	
July	6.125		7,65	7.650	8.000	000.8	
Aug.	6.25	6.96	7.65	8.000	8.000	8.000	
Sept.	6.25	7.20	7.65	8.000	8.000	8.000	
Oct.	6.25	7.20	7.65	8.000	8.000	8.000	
Nov.	6.25	7.40	7.65	8.000	8.000	8.000	
Dec.							
Average	5.989	6.80	7.43	7.796	8.000	8.000	

STRUCTURAL STEEL SHAPES

At Pittsbu	rgh,	Cents	Per	Pound			
Jan. Feb. Mar. Apr. May	1949 3.25 3.25 3.25 3.25 3.25 3.25	1950 3.40 3.40 3.40 3.40 3.40	1951 3.65 3.65 3.65 3.65 3.65 3.65	1952 3.65 3.65 3.65 3.65 3.65	1953 3.85 3.85 3.85 3.85 3.85 3.85	1954 4.10 4.10 4.10 4.10 4.10	
July Aug Sept. Oct Nov. Dec.	3.25 3.25 3.25 3.25 3.25 3.25 3.31	3.40 3.40 3.40 3.40 3.40 3.65	3.65 3.65 3.65 3.65 3.65 3.65 3.65	3.65 3.69 3.85 3.65 3.85 3.85 3.85	3.96 4.10 4.10 4.10 4.10 4.10 4.10	4.10 4.24 4.25 4.25 4.25 4.25 4.25	
Average	3.26 1955	3.42 1956	3.65 1957	3.74 1958	3.98 1959	4.17 1960	
Jan. Feb. Mar. Apr. May June	4.25 4.25 4.25 4.25 4.25 4.25	4.60 4.60 4.60 4.60 4.60 4.60	5.00 5.00 5.00 5.00 5.00 5.00	5.275 5.275 5.275 5.275 5.275 5.275	5.500 5.500 5.500 5.500 5.500 5.500	5.500 5.500 5.500 5.500 5.500 5.500	
July Aug. Sept. Oct. Nov. Dec.	4.51 4.60 4.60 4.60 4.60 4.60	5.00 5.00	5.275 5.275 5.275 5.275 5.275 5.275	5.500 5.500 5.500 5.500 5.500 5.500	5.500 5.500 5.500 5.500 5.500 5.500	5.500 5.500 5.500 5.500 5.500 5.500	
Average	4.41	4.75	5.178	5.369	5.500	5.500	

COLD-FINISHED STEEL BARS

At Pittsbu	rgh,	Cents	Per	Pound		
	1949	1950	1951	1952	1953	1954
Jan	3.98	4.145	4.55	4.55	4.925	5.20
Feb	3.98	4.145	4.55	4.55	4.925	5.20
Mar	3.98	4.145	4.55	4.55	4.925	5.20
Apr	3.98	4.145	4.55	4.55	4.925	5.20
May	3.98	4.145	4.55	4.55 4.55	4.925 5.041	5.20
June	3.96	4.145	4.33	4.00	3.041	3.20
July	3.98	4.145	4.55	4.625	5.20	5.39
Aug	3.98	4.145	4.55	4.925	5.20	5.40
Sept	3.98	4.145	4.55	4.925	5.20	5.40
Oct	3.98	4.148	4.55	4.925	5.20	5.40
Nov	3.98	4.15	4.55	4.925	5.20	5.40
Dec	4.01	4.55	4.55			
Average	3.98	4.179	4.55	4.712	5.072	5.30
	1955	1956	1957	1958	1959	1960
Jan.,	5.40	5.90	6.85	7.300	7.650	7.650
Feb	5.40	6.25	6.85	7.300	7.650	7.650
Mar	5.40	8.25	6.85	7.300	7.650	7.650
Apr	5.40	6.25	6.85	7.300	7.650	7.650
May	5.40	6.25	6.85	7.300	7.650	7.650
June	5.40	6.25	6.85	7.300	7.650	7.650
July	5.77	6.25	7.30	7.300	7.650	7.650
Aug.	5.90	6.61	7.30	7.650	7.650	7.650
Sept.	5.90	6.85	7.30		7.650	7.650
Oct	5.90	6.85	7.30		7.650	7.650
Nov.	5.90		7.30		7.650	7.650
Dec.	5.90		7.30		7.650	7.650
Average	5.63	6.48	7.08	7.446	7.650	7.650

STEEL RAILS AT PITTSBURGH. No. 1 OH

Including	Frice	es by	Mo	nths	and	Tearly	Aver	ages in	Dolla	rs M	er 10	0 16
	1947	1948	1949	1950	1951	1952	1953			1954	1955	195
Jan Feb.						\$3.60	\$3.775	Jan.	5		\$4,445	

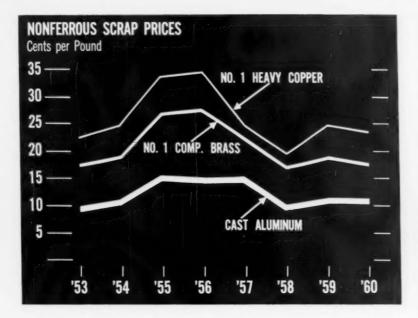
Oct. 2.75 3.20 3.20 3.40 3.60 3.775 4.325 Oct. Nov. 2.75 3.20 3.20 3.40 3.60 3.775 4.325 Nov. Dec. 2.75 3.20 3.26 3.60 3.775 4.325 Dec.	Jan. Feb. Mar. Api. May June July Aug. Sept	2.50 2.50 2.50 2.75	3,20	3.20 3.20 3.20 3.20		3.60 3.60 3.60	3.60 3.60 3.60 3.60 3.60 3.60 3.775	\$3.775 3.775 3.775 3.775 3.775 3.991 4.181 4.325 4.325 4.325	Jan. Feb. Mar. Anr. May June July Aug.
Average 2.60 2.93 3.21 3.42 3.60 3.676 4.102	Sept. Oct. Nov.	2.75 2.75 2.75 2.75	3.20 3.20 3.20 3.20	3.20 3.20 3.20 3.28	3.40 3.40 3.40 3.60	3.60 3.60 3.60 3.60	3.775 3.775 3.775 3.775	4.325 4.325 4.325 4.325	Sept. Oct. Nov. Dec.
	Average	2.60	2.93	3.21	3.42	3.60	3.676	4.102	

a in pone							
	1954	1955	1956	1957	1958	1959	1960
	4.325	\$4.445	\$4.725	\$5.075	\$5.525	\$5.750	\$5.750
			4.725	5.075	5.525	5.750	5.750
Mar.	4,325	4,445		5.275	5.525	5.750	5.750
Anr.	4.325		4.725		5,525		5,750
May	4.325			5.275		5.750	5.750
June	4,325	4.445	4.725	5.275	5.525	5.750	5.750
July	4.442	4.665	4,725	5.525	5.525	5.750	5.750
Aug.	4.445	4.725	5.135	5.525	5.525	5.750	5.750
Sept	4.445	4.725	5.075				5.750
Oct.	4,445	4.725	5.075	5.525	5.750		5.750
Nov.	4.445	4.725	5.075		5.750		5.750
Dec	4.445	4.725	5.075	5.525	5.750	5.750	5.750
Average	4.387	4.579	4.876	5.242	5.60	5.750	5.750

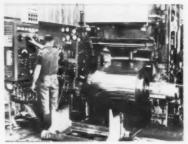
STAINLESS STEEL SHEETS

No	304	Cents	Par	Pound

06	196	1959	1958	1957	1956	1955	1954	
	55.0	55.00	55.00	53.25	47.25	44.50	48.75	Jan
	55.0	55.00	55.00	53.25	47.25	44.50	48.75	Feb
	55.	55.00	55.00	53.25	47.25	44.50	48.75	Mar.
	55.1	55.00	55.00	53.25	47.25	44.50	48.75	Apr.
	55.0	55.00	55.00	53.25	47.25	44.50	45.63	May
90	55.	55.00	55.00	53.25	47.25	44.50	43.75	June
00	55.	55.00	55.00	55.50	47.25	46.56	43.75	July
00	55.1	55.00	55.00	55.50	47.25	47.25	43.75	
00	52.	55.00	55.00	55.50	49.05	47.25	43.75	Sept.
00	52.	55.00	55.00	55.50	50.25	47.25	43.75	
00	52.	55.00	55.00	55.50	50.25	47.25	43.75	
00	52.	55.00	55.00	55.50	50.25	47.25	44.26	Dec.
00	54.	55.00	55.00	54.38	48.15	45.81	45.62	Average
֡	55.0 55.0 52.0 52.0 52.0 52.0 52.0 52.0	55.00 55.00 55.00 55.00 55.00 55.00 55.00	55.00 55.00 55.00 55.00 55.00 55.00 55.00	53.25 55.50 55.50 55.50 55.50 55.50 55.50	47.25 47.25 47.25 49.05 50.25 50.25 50.25	44.50 46.56 47.25 47.25 47.25 47.25 47.25	43.75 43.75 43.75 43.75 43.75 43.75 43.75 44.26	July Aug. Sept. Oct. Nov. Dec.



Nonferrous Metals and Scrap



ALUMINUM SCRAP, CAST

Cents Per Pound, f.o.b. New York*

	1955	1956	1957	1958	1959	1960
Jan.	11.50	17.25	11.12	10.38	10.00	11.50
Feb.	12.94	17.25	10.37	10.25	9.75	11.50
Mar.	14.75	17.25	10.25	10.25	9.75	11.50
Apr.	14.63	16.88	10.62	9.88	9.75	11.50
May	12.85	14.05	10.75	9.75	9.75	11.50
June	12.00	11.50	10.75	9.25	10.38	11.50
July	14.38	12.50	10.75	9.25	11.20	11.50
Aug	16.50	13.00	11.15	9.31	11.50	10.88
Sept.	17.10	13.50	11.25	9.50	11.50	10.25
Oct.	17.13	13.00	11.15	9.50	11.50	9.50
Nov.	17.13	11.75	10.87	9.88	11.50	9.25
Dec.	17.13	12.25	10.75	9.75	11.50	9.25
Average	14.84	14.18	10.82	9.75	10.67	10.80

^{*} Dealers' Buying Price.

BRASS INGOTS, 85-5-5-5

No. 115, C	Cents	Per Po	ound,	Cars*		
	1955	1956	1957	1958	1959	1960
Jan. Feb. Mar. Apr. May June	30.38 32.81 33.80 37.00 35.30 34.50	42.00 42.00 44.00 43.50 40.60 36.25	34.75 32.25 31.50 31.50 31.10 30.25	26.38 25.75 24.88 25.00 25.25 26.31	28.00 28.50 30.81 31.25 30.25 30.25	30.75 30.75 30.75 29.25 29.25 29.25
July Aug. Sept. Oct. Nov. Dec.	36.50 39.19 42.50 41.75 41.75 42.00	35.50 37.75 37.75 37.06 35.00 35.00	29.50 29.35 27.62 27.35 26.75 26.75	27.00 27.00 27.00 28.40 28.00 27.75	29.65 29.25 30.38 29.25 30.38 30.75	29.25 29.25 29.25 28.75 28.25 28.25
Average	37.29	39.70	29.99	26.56	29.89	29.42

^{*} Delivered.

CADMIUM PRICES, STICKS, BARS

Dollars Per Pound, 1 to 5-Ton Lo	ts
September 11, 1950 to November 30, 1950	. 2.40
December 2, 1950 to May 26, 1952	2.55
May 27, 1952 to August 5, 1952	2.28
August 6, 1952 to November 30, 1962	2.00
December 1, 1952 to December 13, 1952	
December 13, 1952 to January 24, 1953	
January 26, 1953 to January 31, 1954	
February 1, 1954 to December 25, 1957	
December 26, 1957 to September 30, 1958	
October 1, 1958 to April 5, 1959	
April 6, 1959 to October 7, 1959	
October 8, 1959 to September 27, 1960.	
September 28, 1960 to December 31, 1960	
	1.00

Brass SCRAP, No. 1 COMP

Cents Per Pound, f.o.b. New York*

	1955	1956	1957	1958	1959	1960
Jan.	21.31	31.50	24.12	15.25	17.00	18.75
Feb.	23.19	31.50	21.75	17.75	17.81	18.81
Mar	24.10	33.60	20.75	14.38	19.69	17.05
Apr.	25.88	32.12	21.12	14.75	20.20	16.75
May	24.90	27.00	20.95	14.75	19.25	16.75
June	24.94	23.75	20.12	16.00	19.00	17.25
July	26.69	24.00	18.75	15.95	17.75	17.63
Aug.	28.81	25.50	18.60	19.94	17.88	18.25
Sept.	30.25	28.00	16.69	15.75	18.56	18.25
Oct.	29.31	25.75	16.15	17.15	18.85	17.13
Nov.	30.30	23.75	16.00	17.50	19.50	16.75
Dec.	31.75	24.00	15.75	17.75	18.63	16.75
Average	26.79	27.37	19.23	16.41	18.68	17.51

^{*} Dealers' Buying Price.

INGOT BRASS AND BRONZE

Short Tons of Shipments, Monthly

	1956	1957	1958	1959	1960
Jan.,,	27,736	25,681	20,468	22,046	22,695
Feb.	24,949	20,769	17,413	23,746	23,129
Mar.	28,310	21,948	18,825	26,109	23,232
Apr.	25,808	23,507	18,009	26,115	20,413
May	23,437	22,037	17,191	23,967	19,885
June	18,842	18,888	17,962	22,922	19,625
July	17,364	16,695	16,658	20,346	14,887
Aug.	23,812	19,654	17,882	21,741	20,216
Sept	20,929	19,670	20,540	22,685	18,259
Oct.	23,045	22,800	23,225	23,067	18,948
Nov.	21,818	19,767	20,758	22,283	19,500°
Dec	18,046	16,875	18,676	29,535	19,800°
Total	274,096	248,291	227,607	284,562	240,589*

^{*} Estimate. Source: Brass & Bronze Ingot Institute.

COBALT, 97 TO 99 PCT.

Per Pound, 100 lb Lots Since 1947

January 2, 1951 to October 1, 1951	\$2.10
October 1, 1951 to October 31, 1953	2.40
November 2, 1953 to December 5, 1956	\$2.60 to 2.67
December 6, 1956 to February 13, 1957	2.35 to 2.42
February 14, 1957 to February 11, 1959	2.00 to 2.07
February 12, 1959 to June 13, 1960	1.75 to 1.82
June 14, 1960 to December 31, 1960	1.50 to 1.57

A weekly column on the nonferrous market as well as complete nonferrous and metal powder prices are a regular Iron Age feature.

No. 1 HEAVY COPPER SCRAP

Cents Per Pound, f.o.b. New York*

	1955	1956	1957	1958	1959	1960
Jan	27.00	41.00	26.63	17.81	22.50	26.00
Feb.	29.19	40.50	23.75	17.25	23.94	26.38
Mar	30.15	43.40	23.75	16.94	25.94	23.70
Apr	31.44	40.75	24.09	17.75	25.40	23.25
May	31.05	35.30	23.60	17.85	25.38	23.25
June	33.00	31.25	22.75	19.81	25.06	22.88
July	33.75	30.13	21.25	20.05	23.15	23.19
Aug.	35.63	32.13	20.85	19.96	23.50	23.63
Sept.	38.65	31.38	18.28	19.56	24.69	23.75
Oct	36.69	29.25	18.95	21.80	24.35	22.38
Nov.	38.25	27.65	19.00	23.66	26.38	21.75
Dec.	41.00	27.75	19.00	23.80	25.45	21.75
Average	33.82	34.21	21.82	19.69	24.65	23.49

[&]quot; Dealers' Buying Price.

BRONZE INGOTS, 88-10-2

No. 245, Cents Per Pound, Cars*

	1955	1956	1957	1958	1959	1960
Jan. Feb. Mar. Apr. May June	35.13 37.56 38.95 42.25 40.55 39.75	48.75 48.75 50.75 50.25 46.80 42.25	39.50 36.62 35.50 35.50 35.10 34.22	29.88 29.25 28.38 28.50 28.75 30.00	32.25 33.00 36.75 36.00 35.00 35.00	36.00 36.00 36.00 34.00 34.00
July Aug Sept. Oct Nov Dec.	41.75 45.50 48.75 48.00 48.00 48.75	41.50 43.50 43.50 42.63 40.00 40.00	33.50 33.35 31.25 30.85 30.25 30.25	30.75 30.75 30.75 32.15 32.25 32.25	34.10 33.50 34.63 33.50 36.88 36.00	34.00 34.00 34.00 33.25 32.50 32.50
Average	42.91	44.89	30.82	30.30	34.72	34.19

^{*} Delivered

REMELT ALUMINUM INGOT

No. 12, Cents Per Pound, Cars*

	1955	1956	1957	1958	1959	1960
Jan.	23.44	32.00	23.31	22.19	21.75	25.00
Feb.	25.98	30.63	22.62	21.50	21.75	25.00
Mar.	29.65	30.10	22.81	21.38	21.75	25.00
Apr.	29.38	30.25	22.69	21.34	21.75	25.00
May	26.70	27.00	21.70	21.36	21.75	25.00
June	26.00	24.63	21.31	21.38	21.75	25.00
July	26.89	25.19	22.09	21.38	23.35	25.00
	29.69	27.44	23.00	21.75	23.75	24.50
	30.35	27.25	22.69	21.75	23.75	24.00
	30.75	25.75	22.55	21.75	23.75	23.25
	31.00	24.07	22.50	21.75	23.75	23.00
	31.25	24.25	22.50	22.00	24.25	23.00
Average	28.41	27.38	22.48	21.63	22.76	24.40

^{*} Delivered.

Prices: Straits tin, electrolytic copper, nickel, aluminum, antimony and U.S. primary aluminum production.

STRAITS TIN, PROMPT PRICE

Cents Per	Poun	d, at	New	York		
	1949	1950	1951	1952	1953	1954
Jan. Feb. Mar. Apr. May June	\$1.03 \$1.03 \$1.03 \$1.03 \$1.03 \$1.03	75.75 74.50 75.62 76.38 77.50 77.70	\$1.72 \$1.83 \$1.45 \$1.46 \$1.46 \$1.16	\$1.215 \$1.215 \$1.215		84.83 85.04 91.88 96.13 93.51 94.19
July Aug. Sept. Oct. Nov. Dec.	\$1.03 \$1.03 \$1.02 95.49 90.11 79.06 99.22	89.88 \$1.02 \$1.01 \$1.13 \$1.38 \$1.45 95.53	\$1.06 \$1.03 \$1.03 \$1.03 \$1.03 \$1.03	\$1.212 \$1.213 \$1.212 \$1.213	81.90 80.71 82.36 80.86 83.11 84.61 95.79	96.54 93.39 93.52 93.05 91.14 88.57 91.82

		1955	1956	1957	1958	1959	1960	
Jan		87.28	104.82	101.53	92.94	99.41	99.85	
Feb.		90.78	100.78	101.06	93.90	102.79	101.13	
		91.04	100.67	99.70	94.42	103.03	100.09	
Apr.		91.40	99.27	99.30	92.95	102.50	99.28	
May		91.37	97.01	98.29	92.95	103.07	99.54	
June		93.64	94.19	98.06	94.49	103.84	101.35	
July		96.82	96.24	96.55	94.89	102.31	103.49	
Aug.		96.46	99.08	94.26	94.99	102.33	102.85	
Sept.		96.26	103.83	93.44	94.05	102.43	102.41	
Oct.		96.09	106.87	91.89	99.46	102.21	103.28	
Nov.		97.87	110.91	89.23	99.24	100.99	102.82	
Dec.		107.76	108.00	92.38	98.99	99.14	102.00°	
Aver	age	94.73	\$1.018	96.31	95.17	102.00	101.51°	

^{*} Estimate.

ANTIMONY, U. S. METAL

Cents Per	Pour	nd, F.C	D.B. L	aredo	Tex.	
	1955	1956	1957	1958	1959	1960
Jan. Feb. Mar. Apr. May June	28.50 28.50 28.50 28.50 28.50 28.50	33.50 33.50 33.50 33.50 33.50 33.50	33.50 33.50 33.50 33.50 33.50 33.50	33,50 31,50 29,50 29,50 29,50 29,50	29.50 29.50 29.50 29.50 29.50 29.50	29.50 29.50 29.50 29.50 29.50 29.50
July Aug. Sept. Oct. Nov. Dec.	28.50 29.75 33.50 33.50 33.50 33.50 30.27	33.50 33.50 33.50 33.50 33.50 33.50	33.50 33.50 33.50 33.50 33.50 33.50	29.50 29.50 29.50 29.50 29.50 29.50 30.00	29.50 29.50 29.50 29.50 29.50 29.50 29.50	29.50 29.50 29.50 29.50 29.50 29.50 29.50

MAGNESIUM, 99.8 PCT INGOT

Cents	Per Po	und, at	Freeport,	Tex.	
1934	26.00	1943	20.50	1952 24.50	1
				1953 26.94	
				1954 . 27.75	
1937	30.00	1946	20.50	1955 30.44	i
1938				1956 36.00	
1939	27.00	1948.	20.50	1957 36.00	j
		1949		1958 36.00	ì
1941	27.00	1950	22.02	1959 36.00	ì
1942	22 50	1951	24 50	1960 36 00	ė

1934	26.00	1943	20.50	1952	24.50
1935	30.00	1944	20.50	1953	26.94
1936	30.00	1945	20.50	1954	. 27.75
1937	30.00	1946	20.50	1955	30.44
1938	30.00	1947	20.50	1956	36.00
1939	27.00	1948	20.50	1957	36.00
1940.	27.00	1949	20.50	1958	36.00
1941	27.00	1950	22.02	1959	36.00
1942	22.50	1951	24.50	1960	36.00

ELECTROLYTIC COPPER

Cents Per	Pour	d. Co	nn. Vo	alley		
	1949	1950	1951	1952	1953	1954
Jan. Feb. Mar. Apr. May June	23.50 23.50 23.49 21.72 18.05 16.66	18.50 18.50 18.50 18.94 19.92 22.27	24.50 24.50 24.50 24.50 24.50 24.50	24.50 24.50 24.50 24.50 24.50 24.50	24.50 25.41 30.58 30.70 29.85 29.88	29.75 29.75 29.87 29.97 30.00 30.00
July Aug. Sept. Oct. Nov. Dec.	17.33 17.63 17.63 17.63 18.42 18.50	22.50 22.54 23.25 24.50 24.50 24.50	24.50 24.50 24.50 24.50 24.50 24.50	24.50 24.50 24.50 24.50 24.50 24.50	29.88 29.39 29.50 29.61 29.75 29.75	30.00 30.00 30.00 30.00 30.00 30.00
Average	19.51	21.54	24.50	24.50	29.07	29.95
	1965	1956	1957	1958	1959	1960
Jan. Feb. Mar. Apr. May June	30.17 33.00 33.22 36.00 36.00 36.00	43.00 44.026 46.00 46.00 46.00 46.00	36.00 33.14 32.14 32.00 32.00 30.90	25.69 25.00 25.00 25.00 25.00 25.26	29.00 29.94 31.14 31.50 31.50 31.50	33.00 33.00 33.00 33.00 33.00 33.00
July	36.00 38.26 43.00 43.00 43.00 43.00 37.55	41.68 40.00 40.00 39.33 36.00 36.00 42.00	29.25 28.72 27.00 27.00 27.00 27.00 30.27	26.02 26.50 26.50 27.61 29.00 29.00	30.52 30.00 30.57 30.57 32.50 33.00 30.98	33.00 33.00 33.00 31.05 30.00 30.00*

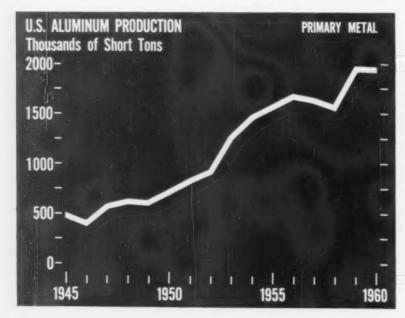
^{*} Estimate.

U. S. PRODUCTION OF PRIMARY ALUMINUM (Short tons)

	1952	1953	1954	1955	1956	1957	1958	1959	1960
Jan.	76,934	89.895	116.247	128.203	140.394	147,029	139,910	156,701	164.024
Feb.	72,374	92.649	110,483	116,235	132,763	119.059	121,980	142,116	156.826
Mar.	77,069	104,920	122,339	130,272	145.895	135,706	134.019	157,189	170,688
Apr.	76,880	102,071	120.431	126,394	144,726	139,152	124,999	155.213	168,596
May	80.804	105,477	125.144	131,128	150.800	145,174	126,327	163.857	175.863
June	77,476	104,152	120,758	127.633	145.726	138,007	115.326	167,323	171.356
July.	78.368	109.285	126,162	132,667	151.624	142,041	118.541	179,194	177,564
Aug.	85,175	110.545	125,296	133.551	92.406	143,448	125,416	172.817	172.973
Sept.	76,882	109.333	120.332	130,606	132.316	129,277	124,713	168,205	162,882
Oct.	77,312	108,219	125,089	134.656	149,125	133,759	137,419	173.742	167.015
Nov.	74,639	105,637	121,252	133.689	145.081	135,024	140.962	153,666	162,500°
Dec.	83,409	110.291	127,035	140.748	148,391	140.036	152,301	162,996	145,213°
Total	937,321	1,252,015	1,458,500	1,565,783	1,678,954	1.647.712	1.565.556	1.953,019	1.995.500°

^{*} Estimate.

Source: U. S. Bureau of Mines and Aluminum Association.



ELECTROLYTIC NICKEL

Cents Per Pound, New York, Duty Paid

July 22, 1948 to Feb. 15, 1949	42.90
Feb. 16, 1949 to Oct. 4, 1949	
Oct. 5, 1949 to May 31, 1950	42.97
June 1, 1950 to Dec. 12, 1950	51.22
Dec. 13, 1950 to June 1, 1951	53.55
June 2, 1951 to Jan. 13, 1953	59.58
Jan. 14, 1953 to Nov. 23, 1954	
F. O. B., Port Colbourne, Canada	
Nov. 24, 1954 to Dec. 5, 1956	64.50
Dec. 6, 1956 to Dec. 31, 1960	74 00

ALUMINUM 99 PCT INGOT

Cents Per Pound, Freight Allowed

Cents F	er rou	na, ri	eigni	WIIOM	ea	
Jan. Feb. Mar. Apr. May June	1949 17.00 17.00 17.00 17.00 17.00 17.00	1950 17.00 17.00 17.00 17.00 17.00 17.50	1951 19.00 19.00 19.00 19.00 19.00 19.00	1952 19.00 19.00 19.00 19.00 19.00 19.00	1953 20.23 20.50 20.50 20.50 20.50 20.50	1954 21.50 21.50 21.50 21.50 21.50 21.50
July Aug. Sept. Oct. Nov. Dec. Average	17.00 17.00 17.00 17.00 17.00 17.00 17.00	17.50 17.50 17.69 19.00 19.00 19.00 17.70	19.00 19.00 19.00 19.00 19.00 19.00	19.00 20.00 20.00 20.00 20.00 20.00 19.42	20.94 21.50 21.50 21.50 21.50 21.50 20.93	21.50 22.08 22.20 22.20 22.20 22.20 21.78
Jan. Feb. Mar. Apr. May June	1955 22.83 23.20 23.20 23.20 23.20 23.20 23.20	1956 24.40 24.40 24.50 25.90 25.90 25.90	1957 27.10 27.10 27.10 27.10 27.10 27.10	1958 28.10 28.10 28.10 26.10 26.10 26.10	1959 26.80 26.80 26.80 26.80 26.80 26.80	1960 28.10 28.10 28.10 28.10 28.10 28.10
July Aug. Sept. Oct. Nov. Dec. Average	23.20 24.40 24.40 24.40 24.40 24.40 23.67	25.90 26.70 27.10 27.10 27.10 27.10 26.00	27.10 28.10 28.10 28.10 28.10 28.10 27.52	26.10 26.80 26.80 26.80 26.80 26.80 26.64	26.80 26.80 26.80 26.80 26.80 27.39 26.85	28.10 28.10 28.10 26.00 26.00 26.00 27.58
* Estimat	e,					

Metal Powders

IRON POWDER PRICES

Cents Per Pound, Averaged Monthly



	Sponge.	Electrolytic.
	98 + Pct Fe,	Domestic,
	Carload Lots.	99.87 Pct Fe.
	-100 Mesh	-100 Mesh
1954 Average	16.35	40.75
1955 Average	9.5	36.5
1956 Average	9.5	36.5
1957 Average	9.50	36.5
1958 Average	11.25	29.50 to 33.00
1959 Average	11.50	34.50
1960 Average	11.50	27 25

U. S. PRODUCTION OF PRIMARY MAGNESIUM

Month	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960
January	988	1.002	1.876	7.425	9,908	6.446	5.089	6,337	7.391	5.272	1.877	3.355
February	884	913	1.709	7.794	9.078	5.856	4.646	5.908	6.617	3,526	1.725	3.180
March		948	1.885	8.893	10.352	6.545	4.942	6.347	7.383	3.235	1.925	3.660
April	0.10	957	2.043	8.800	9.751	6.203	1.859	6.081	7.222	2.772	1.808	3,290
May	007	872	2.194		9.116	6.460	4.277	6.359	7.227	2.469	2.668	3.240
June	950	1.175	2.512	8.670	7.286	6.190	4.757	6.098	6.718	1.784	2,778	3.075
July	885	1.132	2,988	9.529	6.207	6.049	5.112	1.136	6.598	1.799	2.850	3,120
August	970	1.400	3.418	9.771	6,265	5.771	5.880	2.314	6.958	1.845	2.967	3.200
September	974	1,635	4.166	8.422	6,076	5.325	5.923	6.128	6.296	1.791	2.846	3.290
October	941	1.690	5.147	8,990	6.341	5.149	6,296	6.735	6.276	1.927	3.018	3,475
November	969	1.760	6.043	9.123	6.227	4.942	6.130	6.818	5.823	1.814	3.042	3.345*
December.	1.004	1.942	6.923	9.323	6.467	4.788	6.230	7,085	5.648	1,862	3,529	3.460*
Total	11 598	15 726	40 914	105 833	93 075	69 724	61 121	68 346	79 965	20 096	31 033	30 630 *

Producers' reports to Bureau of Mines and Magnesium Assn.

* Estimate.

SHIPMENTS OF IRON AND IRON-BASE POWDER

Total Net Tons, Major Classes*

	Total	Bearings and Parts	Friction Materials	Electronics & Magnetic Applications	Miscel- laneous	Welding Electrodes Flame Cutting
1948	3,520	1,685	25	990	820	
1949	3,235	1.746	14	935	540	
1950	3.942	1.570	23	1.611	738	
1951	3,651	2.150	1.5	900	600	
1952	4.048	2,109	1.0	336	1,602	
1953	6.255	3.457	14.4	1.599	1,189	
1954	7.835	3.445	75.0	905	3.410	
1955	20.724	9.990	99.5	1.097.5	9.537	
1956	22,195	8.900	144.5	1.071	12.030	
1957	25,389	11.893	217.5	970	1.172	11,137
1958	21,479	9.944	141.0	1.425	966	9.003
1959	33.782	18.455	181.0	1.565	1.516	12.065
1960+	32.501	16,730	184.0	1.975	1.563	12.049

* Domestic. † Estimates.

Prices: Lead, zinc . . . U. S. primary magnesium production . . . Metal powder prices including iron and copper.

LEAD PRICE, COMMON GRADE

Cents Per Pound, at St. Louis

Cents Per	Pou	na, c	7 51.	Loui	S		
	1948	1949	1950	1951	1952	1953	1954
Jan.	15.00	21.50	12.00	17.00	19.00	14.19	13.26
Feb.	15.00	21.50	12.00	17.00	19.00	13.50	12.82
Mar.	15.00	18.98	10.96	17.00	19.00	13.40	12.94
Apr.	17.21	15.15	10.63	17.00	18.91	12.64	13.91
May	17.50	13.72	11.72	17.00	15.73	12.74	14.00
June	17.50	12.00	11.81	17.00	15.08	13.41	14.11
July	17.80	13.56	11.66	17.00	16.00	13.58	14.00
	19.50	14.99	12.93	17.00	16.00	14.00	14.66
Sept.	19.50	15.65	15.80	17.00	16.00	13.74	14.60
Oct.	19.50	13.42	16.00	18.93	14.40	13.50	14.98
Nov.	21.50	12.52	17.00	19.00			15.00
Dec.	21.50	12.00	17.00	19.00	14.13	13.50	15.00
Average	18.04	15.37	13.29	17.49	16.45	13.48	14.06
	1955	195	56 13	357	1958	1959	1960
Jan.	15.00				12.80	12.42	11.80
Feb.	15.C0				12.80	11.42	11.80
Mar.	15.00				12.80	11.30	11.80
Apr.					11.85	11.01	11.80
May	40.00				11.52	11.70	11.80
June	15.00	15.8	30 14	.12	11.04	11.80	11.80
July					10.80	11.80	11.80
Aug.					10.65	12.09	11.80
Sept.					10.68	12.80	11.80
Oct.					12.47	12.80	11.80
Nov	15.3				12.80	12.80	11.80
Dec.	15.3	15.	80 12	.80	12.80	12.32	11.30
Average	15.0	5 15.	81 14	1.45	11.92	12.02	11.75

* Estimate.

COPPER POWDER PRICE

Cents per lb. F.O.B. Mill-100 Mesh

		Ele	ectrolytic	Hydrogen Reduced
1954 Averag	je		43.50	43.50
1955 Averag	je.		53.37	53.37
1956 Averag	je .		60.50	60.50
1957 Averag	10 :		45.67	49.75
1958 Averag	je		41.25	48.8
1959 Averag	je		48.25	43.25
1960 Averse	30		1.4 7E÷	14 76+

† Plus cost of metal.

IMPORTS OF IRON POWDER

Net Tons	
1952 1953 1954 1955 1956 1957 1957 1959 1960	5,627 6,964 9,835 10,986 10,125 5,000 557 392 568

* Estimated.

PRIME WESTERN ZINC PRICE

-				-	
Cents	Per	Pound.	at E.	St.	Louis

	1948	1949	1950	1951	1952	1953	1954		1955	1956	1957	1958	1959	1960
Jan.	11.69	18.18	9.48	18.22	20.29	13.43	10.26	Jan.	12.00	13.44	13.50	10.00	11.50	12.90
Feb.	12.61	18.20	10.47	18.22	20.29	12.31	9.88	Feb.	12.00	13.50	13.50	10.00	11.42	13.00
Mar.	12.61	17.76	10.66	18.22	20.29	11.86	10.16	Mar.	12.00	13.50	13.50	10.00	11.00	13.00
Apr	12.61	14.76	11.41	18.25	20.29	11.83	10.75	Apr	12.43	13.50	13.50	10.00	11.00	13.00
May		12.58	12.71	18.25	20.33	11.83	10.79	May	12.50	13.50	11.93	10.00	11.00	13.00
June	12.65	10.27	15.49	18.25	16.57	11.83	11.46	June	12.75	13.50	10.84	10.00	11.00	13.00
July	13.09	10.06	15.72	18.25	15.83	11.67	11.50	July	13.00	13.50	10.00	10.00	11.00	13.00
Aug.						11.53	11.50	Aug.	13.00	13.50	10.00	10.00	11.00	13.00
Sept.					14.86	10.68	11.98	Sept	13.40	13.50	10.00	10.00	11.33	13.00
Oct.			18.22		14.08	10.50	12.00	Oct.	13.50	13.50	10.00	10.87	12.21	13.00
Nov.	17.27	10.46	18.22		13.33	10.50	12.00	Nov.	13.50	13.50	10.00	11.42	12.50	13.00
Dec.	18.15	10.47	18.22	20.29	13.33	10.50	12.00	Dec	13.50	13.50	10.00	11.50	12.50	12.75
Average	14.20	12.85	14.51	18.75	17.03	11.54	11.19	Average	12.79	13.49	11.39	10.32	11.46	12.97

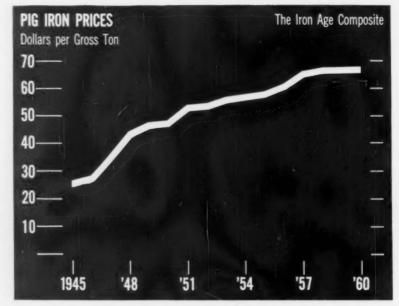
COPPER AND COPPER-BASE POW-DER SHIPMENTS, FLAKE AND GRANULAR

Net	Tons	
1953 1954 1955 1956 1957 1958 1959 1960		17,000 14,800 21,500 19,000 17,900 18,000 24,500 19,500

* Iron Age estimate.

Pig Iron and Iron Ore





COMPOSITE PIG IRON PRICE

Average of THE IRON AGE quotations on basic pig iron at Valley furnaces and foundry fron at Chicago, Birmingham, Buffalo, Valley and Philadelphia, in gross tons.

														of annual in	,					
	1940	1941*	1945*	19-6	1947	1948		1949	1950	1951	1952	1953	1954		1955	1956	1957	1958	1959	1960
Jan.	\$22.61	\$23.45	\$23.61	\$25.37	\$30.14	\$39.83	Jan.	\$46.79	\$45.98	\$52.69	\$52.72	\$55.26	\$56.59	Jan.	\$56.59	\$59.09	\$62.90	\$66.42	\$66.41	\$66.41
Feb.	22.61	23,45	23.86	25.37	30.15	40.27	Feb.	46.74						Feb.	56.59	59.09	62.90	66.45	66.41	66.41
Mar.	22.61	23,53	24.61	25.75	32.92	40.32	Mar.	46.74					56.59	Mar.	56.59	59.25	64.58	66.49	66,41	66.41
Apr.		23.61	24.61	26.12			Apr.	46.64	46.38	52.69	52.72	55.26	56.59	Apr.	56.59	60.29			66.41	66.41
May		23,61	24,61				May	45.97				55.26		May	56.59				66,41	
June	22.61	23.61	24.61	28.13	33.15	40.51	June	45.91	46.38	52.69	52.77	55.32	56.59	June	56.59	60.29	64.56	B€.49	66.41	66.41
July	22.61	23.61	24.61	28.13	34.52	42.25	July	45.91	46.38	52.69	53.27	56.73	56.59	July	58.46	60.33	65.37	66.49	66.41	66.41
Aug.	22.61	23.61	24.61	28.13	36.84		Aug							Aug.					66.41	66.41
Sept.	22.61	23.61	24.61	28.13	36.95	44.96	Sept.						56.59	Sept.			66.42	66.41	66.41	66.41
Oct.		23.61					Oct.	45.88	49.29	52.72	55.26	56.59	56.59	Oct.	59.09	63.04			66.41	66,41
Nov.	22.61						Nov.	45.88	49.69					Nov.					66.41	66.32
Dec.	22.95	23.61	25.37	29.64	37.06	46.82	Dec.	45.88	52.50	52.72	55.26	56.59	56.59	Dec.	59.09	63.04	68.42	66.41	66.41	66.32
Average	22.64	23.58	24.61	27.29	34.34	42.76	Averag	ge 46.18	47.85	52.70	53 82	55 96	56.59	Average	57.78	61.15	65.15	66.45	66.41	66.39

^{*} Price unchanged at \$23.61 from 1942 through 1944.

PRODUCTION OF PIG IRON AND FERROALLOYS, Net Tons

				PIG IRON					FERROA	LTOA2.	
Year	Basic	Bessemer	Low Phosphorus	Foundry	Malleable	All Other, Including Direct Castings	Total Pig Iron	Ferromang. and Spiegeleisen	Ferrosilicon and Silvery Pig Iron	All Other Ferroalloys	Total Ferroalloys
1960 1959	52.059.652	2 055 770	274 470	1 001 000	0 407 054	000 445	67,500,000+		1117244		2,300,000
1958	49,114,646	3,055,776 3,599,873	374,479 320,278	1,881,228	2,487,851 2,304,904	280,415 211,978	60,139,401 57,157,707	679,633 678,395	644,727 448,296	660,025 523,896	1,984,385 1,650,587
1957	65,377,744	6,344,106	580.013	2.279.256	3.459.331	334.928	78,375,378	1,040,590	721,139	666,178	2,422,907
1956	61,638,748	6,664,957	504,189	2,398,346	3.467.117	395,132	75,068,489	968,006	809.285	729.678	2,506,969
1955	62,484,889	7.436.354	263.036	2.754.641	3.531.420	387.077	76.857.417	955.174	803,281	647,993	2,406,448
1954	47,023,175	5,652,503	211,893	2,273,032	2,629,662	202,283	57,965,548	749,314	636,694	454.587	1,840,694
1953	59.882,512	8,110,881	297,065	2,500,996	3.784.458	325,517	74,901,429	1,007,248	772,339	569,152	2,348,739
1952	47,511,189	7,445,715	307,478	2.670.210	3,120,168	258,178	61,312,938	820,808	749,059	471,150	2,041,017
1951 1950	54,212,509 49,880,440	9,045,954	314.725	3,050,626	3,363,369	287,095	70,274,278	865,805	919,085	389,375	2,174,265
1949	40,905,356	8,090,608	335,418	2,806,247	3,181,043	293,151	64,586,907	776,881	839,667	196,856	1,813,404
1948	46,315,064	7,059,416	301,520	2,503,912	2,409,436	232,922	53,412,562	675,029	667,322	161,872	1,504,223
1947	44,804,743	7,182,207	384.425	2,769,510	2,590,656	264,031	60,055,216	805,013	842,385	208,945	1,856,343
1946	33,727,655	5.932.414	331,118 167,013	2,953,405	2,874,752	182,687	58,328,912	800,725	802,976	184,706	1,788,407
1040	33,121,000	2,356,414	107,013	5,349,930	2.190.285	215,493	44,778,796	540,061	724,141	156,828	1,421,030

^{*} Including ferroalloys produced in electric furnaces. | Iron Age estimate. | Source: American Iron and Steel Institute.

CANADIAN BLAST FURNACE PRODUCTION, Net Tons Including Ferroalleys

Year	Pig Iron	Ferroalloys	Total	Year	Pig Iron	Ferroalloys	Total	Year	Pig fron	Ferroalloys	Total
1937 1938 1939 1940 1941 1942 1943 1944	1,006,717 789,710 846,181 1,309,161 1,528,054 1,975,015 1,758,269 1,852,628	91,931 59,720 85,531 151,661 213,218 213,636 197,094 171,323	1.098,648 849,430 931,949 1.460,822 1.741,272 2.188,651 1.955,363 2.023,951	1945 1946 1947 1948 1949 1950 1951	1,777,958 1,403,758 1,969,847 2,120,909 2,154,352 2,309,732 2,552,696 2,682,065	186,978 116,995 149,832 250,859 211,603 181,575 250,930 232,036	1,964,936 1,520,753 2,119,679 2,371,568 2,365,955 2,491,307 2,803,626 2,914,101	1953 1954 1955 1956 1957 1958 1959	3,012,269 2,213,433 3,213,764 3,56E,196 3,718,195 3,060,962 4,181,794 4,371,000	150,595 109,833 166,682 242,164 230,031 110,754 129,705 135,000	3,162,864 2,323,266 3,380,440 3,810,366 3,948,186 3,171,716 4,311,399 4,500,000

^{*} Estimated.

Source: Dominion Bureau of Statistics.

Prices: Foundry iron at Buffalo, Chicago, Granite City and Birmingham . . . Basic iron Valley . . . Valley malleable.

CHICAGO FOUNDRY PIG IRON

	1949	1950	1951	1952	1953	1954
Jan	\$46.50	\$46.50	\$52.50	\$52.50	\$55.00	\$56.50
Feb.	46.50	46.50	52.50	52.50	55.00	56.50
Mar	46.50	46.50	52.50	52.50	55.00	58.50
Apr.	46.50	46.50	52.50	52.50	56.00	56.58
May.	46.50	46.50	52.50	52.50	55.00	56.50
June	46.50	46.50	52.50	52.50	55.00	56.50
July	46.50	46.50	52.50	53.00	56.50	56.50
Aug.		46.50	52.50	55.00	56.50	56.50
Sept	46.50	47.50	52.50	55.00	56.50	56.50
Det	46.50	49.50	52.50	55.00	56.50	56.50
Nov	46.50	49.50	52.50	55.00	56.50	56.50
Dec.	46.50	52.50	52.50	55.00	58.50	56.50
Average	46.50	47.58	52.50	53.75	55.75	56.50
	1955	1956	1957	1958	1959	1960
lan.	\$56.50	\$59.00	\$63.00	\$66.50	\$66.50	\$66.50
Feb.	56.50	59.00	63.00	66.50	66.50	66.50
Viar.	56.50	59.00	65.00	66.50	66.50	66.50
Anr.	56.50	60.50	65.00	66.50	66.50	66.50
Vlay		60.50	65.00	66.50	66.50	66.50
June .	56.50	60.50	65.00	66.50	66.50	66.50
fuly	58.37	60.50	66.50	66.50	66.50	66.56
Aug.	59.00	61.13	66.50	66.50	66.50	66.50

GRANITE CITY, ILL., PIG IRON

Foundry,	Gross	Ton,	at F	urnace		
	1949	1950	1951	1952	1953	1954
Jan.	\$48.40	\$48.40	\$54.40	\$54.40	\$56.90	\$58.40
Feb.	48.40	48.40	54.40	54.40	56.90	58.40
Mar	48.40	48.40	54.40	54.40	56.90	58.40
Apr.	48.40	48.40	54.40	54.40	56.90	58.40
May	48.40	48.40	54.40	54.40	56.90	58.40
June	48.40	48.40	54.40	54.40	56.90	58.40
July	48.40	48.40	54.40	54.90	58.40	58.40
Aug.		48.40	54.40	56.90	58.40	58.40
Sept.	48.40	48.40	54.40	56.90	58.40	58.40
Oct.	48.40	51.40	54.40	56.90	58.40	58.40
Nov	48.40	51.40	54.40	56.90	58.40	58.40
Dec	48.40	53.65	54.40	56.90	58.40	58.40
Average	48.40	49.34	54.40	55.48	57.65	58.40
	1955	1956	1957	1958	1959	1960
Jan.	\$58.40	\$60.90	\$64.90	\$68.40	\$68.40	\$68.40
Feb.	58.40	60.90	64.90	68.40	68.40	68.40
Mar.	58.40	80.90	66.90	68.40	68.40	68.40
Apr.	58.40	62.40	66.90	68.40	68,40	68.40
May	58.40	82.40	66.90	68.40	68.40	68.40
June	58.40	62.40	66.90	68.40	68.40	68.40
July	60.27	62.40	68.40	68.40	68.40	68.40
Aug.	60.90	64.90	68.40	68.40	68.40	68.40
Sept.		64.90	68.40	68.40	68.40	68.40
Oct.	60.90	64.90	68.40	68.40	68.40	68.40
Nov.	60.90	64.90	68.40	68.40	68.40	68.40
Dec.	60.90	64.90	68.40	68.40	68.40	68.40
Average	59.59	63.07	67.32	68.40	68.40	68.40

MALLEABLE PIG IRON PRICES

Per Gross	Ton,	Maho	ning,	Shena	ngo V	alley
	19481	1950	1951	1952	1953	1954
Jan.	\$39.50	\$46.50	\$52.50	\$52.50	\$55.00	\$56.50
Feb.	39.50	46.50	52.50	52.50	55.00	56.50
Mar.	39.50	46.50	52.50	52.50	55.00	56.50
Apr.	39.50	46.50	52.50	52.50	55.00	56.50
May	39.50	46.50	52.50	52.50	55.00	56.50
June	39.50	46.50	52.50	52.50	55.00	56.50
July	42.50	46.50	52.50	53.00	56.50	56.50
Aug.	43.50	46.50	52.50	55.00	56.50	56.50
Sept.	43.50	47.50	52.50	55.00	56.50	56.50
Oct.	46.12	49.50	52.50	55.00	56.50	56.50
Nov.	48.50	49.50	52.50	55.00	56.50	56.50
Dec.	46.50	52.50	52.50	55.00	56.50	56.50
Average	42.13	47.58	52.50	53.75	55.75	56.50

[†] Price unchanged at \$46.50 through 1949.

BUFFALO FOUNDRY PIG IRON

Per Gross		-				
	1949	1950	1951	1952	1953	1954
lan.	\$47.28	\$46.50	\$52.50	\$52.50	\$55.00	\$56.50
Feb	47.00	46.50	52.50	52.50	55.00	56.50
Mar.	47.00	46.50	52.50	52.50	55.00	56.50
Apr.	46.75	46.50	52.50	52.50	55.00	56.50
May	46.50	46.50	52.50	52.50	55.00	56.50
lune	46.50	46.50	52.50	52.50	55.00	56.50
luly	46.50	46.50	52.50	53.00	56.50	56.50
Aug	46.50	48.50	52.50	55.00	56.50	56.50
ept.	46.50	47.25	52.50	55.00	56.50	56.50
Oct.	46.50	49.50	52.50	55.00	56.50	56.50
Nov.	46.50	49.50	52.50	55.00	56.50	56.50
Dec	46.50	52.50	52.50	55.00	56.50	56.50
Average	46.67	47.56	52.50	53.75	55.75	56.56
	1955	1956	1957	1958	1959	1960
lan	\$56.50	\$59.00	\$63.00	\$66.50	\$66.50	\$66.50
Feb.	56.50	59.00	63.00	66.50	66.50	66.5
Mar	56.50	59.00	65.00	66.50	66.50	66.5
Apr.	56.50	60.50	65.00	66.50	66.50	66.5
May.	56.50	60.50	65.00	66.50	66.50	66.5
June .	56.50	60.50	65.00	66.50	66.50	66.5
July	58.37	60.50	66.50	66.50	66.50	66.5
Aug.	59.00	62.00	66.50	66.50	66.50	66.5
Sept	59.00	63.00	66.50	66.50	66.50	66.5
Oct.	59.00	63.00	66.50	66.50	66.50	66.5
Nov.	59.00	63.00	66.50	66.50	66.50	66.5
Dec.	59.00	63.00	66.50	66.50	66.50	66.5
Average	57.69	61.08	65.42	66.50	66.50	66.5

BIRMINGHAM PIG IRON PRICES

Foundry (Grade	, Per	Gross	Ton		
	1949	1950	1951	1952	1953	195
Jan.	\$43.38	\$39.38	\$48.88	\$48.88	\$51.38	\$52.8
Feb.	43.38	42.38	48.88	48.88	51.38	52.8
Mar.		42.38	48.88	48.88	51.38	52.8
Apr		42.38	48.88	48.88	51.38	52.8
May .		42.38	48.88	48.88	51.38	52.8
June	39.38	42.38	48.88	48.88	51.38	52.8
July	39.38	42.38	48.88	49.38	52.88	52.8
Aug	39.38	42.38	48.88	51.38	52.88	52.8
Sept	39.38	42.87	48.88	51.38	52.88	52.8
Oct	39.38	45.88	48.88	51.38	52.88	52.8
Nov.		45.88	45.88	51.38	52.88	52.8
Dec.	39.38	48.88	48.88	51.38	52.88	52.8
Average	40.74	43.53	48.88	49.96	52.13	52.8
	1955	1956	1957	1958	1959	190
Jan.	\$52.88	\$55.00	\$59.00	\$62.50	\$62.50	\$62.5
Feb.	52.88	55.00	59.00	62.50	62.50	62.5
Mar.		55.00	59.00	62.50	62.50	62.
Apr.		55.00	59.00	62.50	62.50	62.5
May		55.00	59.00	62.50	62.50	62.5
June	52.88	55.00	59.00	62.50	62.50	62.
July	54.47	57.67	62.50	62.50	62.50	62.5
Aug	55.00	58.65	62.50	62.50	62.50	62.
Sept.		59.00	62.50	62.50	62.50	62.5
Oct.		59.00	62.50	62.50	62.50	62.5
Nov.		59.00	62.50	62.50	62.50	62.5
Dec.	55.00	59.00	62.50	62.50	62.50	62.
Average	53.89	56.86	60.75	62.50	62.50	62.

	1955	1956	1957	1958	1959	1960	
Jan.	\$56.50	\$59.00	\$63.00	\$66.50	\$66.50	\$66.50	
Feb.	56.50	59.00	63.00	66.50	66.50	66.50	
Mar.	56,50	59.00	65.00	66.50	66.50	66,50	
Apr.	56.50	60.50	65.00	66.50	66.50	66.50	
May	56.50	60.50	65.00	66.50	66.50	66.50	
June	56.50	60.50	65.00	66.50	66.50	66.50	
July	56.87	60.50	67.00	66.50	66.50	66.50	
Aug.	59.00	63.00	67.00	66.50	66.50	66.50	
Sept.	59.00	63.00	67.00	66.50	66.50	66.50	
Oct.	59.00	63.00	67.00	66.50	66.50	66.50	
Nov.	59.00	63.00	67.00	66.50	66.50	66.50	
Dec	59.00	63.00	67.00	66.50	66.50	66.50	
Average	57.57	61.17	65.67	66.50	66.50	66.50	

BASIC PIG IRON, VALLEY

Mahoning	, She	nango	Valle	ey, G	ross T	on
	19481	1950	1951	1952	1953	1954
Jan	38.87 39.00 39.00 39.00 39.00 39.00	\$46.00 46.00 46.00 46.00 46.00 46.00	\$52.00 52.00 52.00 52.00 52.00 52.00 52.00	\$52.00 52.00 52.00 52.00 52.00 52.00	\$54.50 54.50 54.50 54.50 54.50 54.50	\$56.00 56.00 56.00 56.00 56.00 56.00
July Aug. Sept. Oct. Nov. Dec.	42.00 43.00 43.00 45.62 46.00 46.00	46.00 46.75 49.00 49.00 51.62	52.00 52.00 52.00 52.00 52.00 52.00	52.50 54.50 54.50 54.50 54.50 54.50	56.00 56.00 56.00 56.00 56.00 56.00	56.00 56.00 56.00 56.00 56.00 56.00
Average	41.62 1955	47.03 1956	52.00 1957	53.08	55.25 1959	56.00 1960
Jan. Feb. Mar. Apr. May June	\$56.00 56.00 56.00 56.00 56.00 56.00	\$58.50 58.50 58.50 60.00 60.00 60.00	\$62.50 62.50 64.50 64.50 64.50 64.50	\$66.00 66.00 66.00 66.00 66.00	\$66.00 66.00 66.00 66.00 66.00	\$66.00 66.00 66.00 66.00 66.00 66.00
July Aug. Sept. Oct. Nov. Dec.	57.87 58.50 58.50 58.50 58.50 58.50	60.00 62.50 62.50 62.50 62.50 62.50	66.00 66.00 66.00 66.00 66.00	66.00 66.00 66.00 66.00 66.00	66.00 66.00 66.00 66.00 66.00	66.00 66.00 66.00 66.00 66.00
Average	57 19	60.67	64.92	66.00	66.00	66.00

Price unchanged at \$46.00 through 1949.



Prices: Lake Superior ore, foundry and furnace coke . . . Iron ore analyses, ore shipments and prices for various grades.

LAKE SUPERIOR IRON ORE

Avge. Analyses, Combined Ranges, Grades

		An	alyses, P	ct	
Year 1959 1958 1956 1955 1951 1952 1951 1952 1951 1949 1948 1947 1946	Iron. Natural 53.81 53.78 52.14 51.34 50.63 50.86 50.37 50.25 50.38 50.49 50.91 50.31	Phos. 0.085 0.086 0.089 0.099 0.099 0.091 0.090 0.091 0.090 0.093 0.093 0.083 0.087 0.089	Silica 8.93 8.76 9.39 10.11 10.25 10.05 9.87 9.85 9.30 9.09 9.30 9.09 8.83 8.52	Mang. 0.61 0.53 0.65 0.67 0.72 0.70 0.77 0.77 0.77 0.76 0.76 0.75 0.76	Mois- ture 6.04 8.49 9.83 10.39 10.81 10.47 10.90 10.78 11.22 11.11 11.12 11.35 11.28 11.22 10.96
1944 1943	51.72 51.58	0.088	8.42	0.74	11.02 11.06

Source: American Iron Ore Assn.

LAKE SHIPMENTS OF IRON ORE

Lake	Superior	Shipments.	Gross	Tons

PRAC	auberroi	Simplification,	01000	10112
1942 1943 1944 1945 1946 1947 1948 1949 1950 1951 1952 1953 1955 1956 1957 1959 1959				92,070,000 95,116,000 91,039,000 75,207,000 77,210,278 82,655,737 78,506,269 78,205,592 90,092,012 74,910,798 89,092,012 74,910,798 80,793,697 74,498,853 73,389,972 84,615,871 52,243,820 46,943,840 70,000,000

Lake	Superior	Shipments,	Gross	Tons
1942 1943 1944 1945 1946 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959				92,070,000 95,116,000 10,039,000 75,207,000 77,210,278 82,655,737 78,556,269 78,205,592 78,205,592 74,910,798 86,844,449 80,793,897 87,459,853 87,459,857 87,459,857 84,615,871 86,943,840

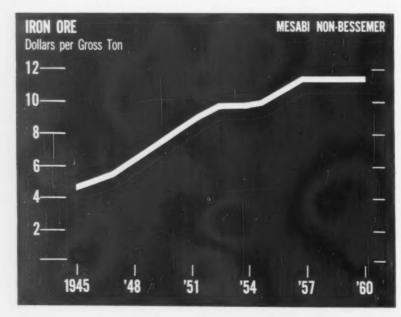
* Estimate. Source: American Iron Ore Assn.

LAKE SUPERIOR IRON ORE PRICES

BESSEMER ORES Guarantee Price 1947 to Apr. 1, 1948 1948 Apr. 1 on 1949 51.50 51.50 51.50 51.50 51.50 51.50 51.50 51.50 51.50 51.50 51.50 51.50 51.50 51.50 51.50 51.50 0.045 0.045 0.045 0.045 0.045 0.045 0.045 0.045 0.045 0.045 0.045 0.045 0.045 1949 1950-Feb. 1 to Dec. 1 1950 Dec. 1 on 1951 1952 to July 25 1952 July 26 on 1953 to June 30 1953 July 1 on 1954

Per Gross Ton at Lower Lake Ports

NON-BESSEMER	Guar- antee	Price				
	Iron Natural	Old Range	Mesabi	High Phos- phorus		
1947 to Apr. 1, 1948	51.50	5.80	5.55	5.55		
1948 Apr. 1 on	51.50	6.45	6.20	6.20		
1949	51.50	7.45	7.20	7.20		
1950 Feb. 1 to Dec. 1		7.95	7.70	7.70		
1950 Dec. 1 on	51.50			8.30		
1951	51.50	8.55	8.30	8.30		
1952 to July 25	51.50	8.55	8.30	8.30		
1952 July 26 on	51.50	9.30	9.05	9.05		
1953 to June 30	51.50	9.95	9.70	9.70		
1953 July 1 on	51.50	10.15	9,90	9.90		
1954	51.50	10.15	9.90	9.90		
1955	51.50	10.25	10.10	10.00		
1956	51.50	11.10	10.85	10.85		
1957	51.50	11.70	11.45	11.45		
1958	51.50	11.70	11.45	11.45		
1959	51.50	11.70	11.45	11.45		
1960		11.70	11,45	11.45		



U. S. IRON ORE CONSUMPTION

				-			
n	^	m	~	- 1	-	m	0

106,610,273
114,837,112
100 640 636
122,124,661
96,800,000
114,989,933
119,669,641
124,941,763
91.899.541
94.398.015
108,000,000

* Estimate by The Iron Age. Source: U. S. Bureau of Mines.

CONNELLSVILLE FOUNDRY COKE

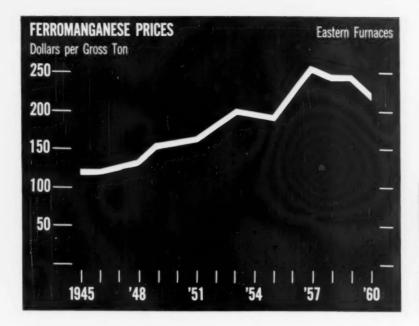
Net Ton at Oven, Monthly Review

1949	1950	1951	1952	1953	1954
\$16.94	\$15.75	\$17.25	\$17.75	\$17.75	\$16.75
16.75	15.75	17.25	17.75	17.75	16.75
16.50	16.25	17.50	17.75	17.63	16.75
16.50	15.25	17.75	17.75	17.25	16.75
16.38	16.25	17.75	17.75	17.25	16.75
16.25	16.25	17.75	17.75	17.25	16.75
16.13	16.25	17.75	17.75	17.25	16.75
15.75	16.25	17.75	17.75	17.25	16.75
15.75	16.25	17.75	17.75	16.95	16.75
15.75	16.75	17.75	17.75	16.75	16.75
15.75	16.75	17.75	17.75	16.75	16.75
15.75	17.12	17.75	17.75	16.75	16.75
16.18	16.32	17.65	17.75	17.22	16.75
1955	1956	1957	1958	1959	1960
\$16.75	\$16.25	\$18.25	\$18.25	\$18.25	\$18.50
16.75	16.25	18.25	18.25	18.25	18.50
	16.25	18.25	18.25	18.25	18.50
					18.50
					18.50
16.25	17.50	18.25	18.25	18.25	18.50
16.25	17.50	18.25	18.25	18.25	18.50
16.25	17.50	18.25	18.25	18.25	18.50
16.25	17.50	18.25	18.25	18.25	18.50
		20.00	30 95	10 95	18.50
16.25	18.25	18.25	18.25	18.25	18.50
	\$16.94 16.75 18.30 16.30 16.38 16.25 16.13 15.75 15.75 15.75 16.75 16.75 16.75 16.75 16.75 16.75 16.25	\$16.94 \$15.75 16.75 15.75 16.75 15.75 16.25 16.25 15.75 16.25 15.75 16.25 15.75 16.25 15.75 16.25 15.75 16.25 15.75 16.25 15.75 16.25 15.75 16.25 15.75 16.25 16.75 16.25 16.75 16.25 16.75 16.25 16.75 16.25 16.75 16.25 16.75 16.25 16.75 16.25 16.75 16.25 16.75 16.25 16.75 16.25 17.50 16.25 17.50 16.25 17.50 16.25 17.50 16.25 17.50 16.25 17.50	\$16.94 \$15.75 \$17.25 \$17.25 \$16.75 \$15.75 \$17.25 \$16.55 \$17.25 \$16.85 \$15.25 \$17.75 \$16.25 \$15.25 \$17.75 \$16.25 \$15.75 \$16.25 \$17.75 \$15.75 \$16.25 \$17.75 \$15.75 \$16.25 \$17.75 \$15.75 \$16.25 \$17.75 \$15.75 \$16.75 \$17.75 \$15.75 \$16.75 \$17.75 \$15.75 \$16.75 \$17.75 \$15.75 \$16.75 \$17.75 \$15.75 \$16.75 \$17.25 \$15.75 \$16.75 \$17.55 \$16.75 \$17.55 \$16.75 \$17.55 \$16.75 \$17.55 \$16.75 \$17.55 \$16.75 \$17.55 \$16.75 \$17.50 \$18.25 \$16.25 \$17.50 \$18.25 \$18.25 \$17.50 \$18.25 \$18.25 \$17.50 \$18.25 \$18.25 \$17.50 \$1	\$16.94 \$15.75 \$17.25 \$17.75 \$16.75 \$15.75 \$17.25 \$17.75 \$16.75 \$17.75 \$1	\$16.94 \$15.75 \$17.25 \$17.75 \$1

CONNELLSVILLE FURNACE COKE

Not Ton at Oven. Monthly Review

1401 1011	41 0	von, 1	410111111	A ICO.	10 W	
	1949	1950	1351	1952	1953	1354
Jan.	\$16.56	\$14.00	\$14.25	\$14.75	\$14.75	\$14.38
Feb.	15.25	14.00	14.25	14.75	14.75	14.38
Mar.	14.50	14.13	14.50	14.75	14.75	14.38
Apr.	14.50	14.25	14.75	14.75	14.75	14.38
May	14.38	14.25	14.75	14.75	14.75	14.38
June	14.25	14.25	14.75	14.75	14.75	14.38
July	14.25	14.25	14.75	14.75	14.75	14.38
Aug.	14.25	14.25	14.75	14.75	14.75	14.38
Sept.	14.25	14.25	14.75	14.75		
Oct.	14.25	14.25	14.75	14.75	14.38	14.38
Nov.	14.20		14.75	14.75		14.36
Dec.	14.00	14.25	14.75	14.75	14.38	14.38
Average	14.58	14.20	14.65	14.75	14.64	14.38
	1955	1956	1357	1358	1959	1960
1	\$14.38	\$14.25	\$15.38	\$15.38	\$14.50	\$15.13
Jan. Feb.	14.38	14.25	15.38	15.38	15.00	15.13
Mar.	14.38	14.25	15.38	15.38	15.00	
An-		14.50	15.38	15.38	15.00	
May	13.15		15.38	15.38		
June	13.25		15.38	15.38	15.00	15.13
July	13.25				15.00	
Aug.	13.25	14.62	15.38	14.50	15.00	
Sept.	13.25	14.62	15.38	14.50	15.00	
Oct.	13.25		15.38	15.50	15.00	
Nov.	14.25	15.28	15 38	14.50	15.00	
Dec.	14.25	15.50	15.38	14.50	15.13	15.13
Average	13.69	14.62	15.38	15.01	14.96	15.13



Ferroalloys, Furnace Bricks



FERROMANGANESE

Eastern Producers, Carloads, Cents Per Lb

	1947	19481	1949	1950	1951	1952	1953:	19541	1955	1956	1957	1958	1959	1960
Jan.	6.03	6.47	7.21	7.74	8.27	8.31	10.10	10.00	9.50	10.25	12.75	12.25	12.25	12.25
Feb.	6.03	6.47	7.21	7.74	8.31	8.31	10.10	10.00	9.50	10.25	12.75	12.25	12.25	11.00
Mar	6.03	6.47	7.56	7.74	8.31	8.31	10.10	10.00	9.50	10.25	12.75	12.25	21.25	11.00
Apr.	6.03	6.47	7.74	7.74	8.31	8.31	10.00	10.00	9.50	10.65	12.75	12.25	12.25	11.00
May	6.03	6.47	7.74	7.74	8.31	8.31	10.12	10.00	9.50	10.75	12.85	12.25	12.25	11.00
June	6.03	6.47	7.74	7.74	8.31	8.31	10.60	10.00	9.50	10.75	12.75	12.25	12.25	11.00
July	6.03	6.47	7.74	7.74	8.31	8.31	10.00	10.00	9.50	10.75	12.75	12.25	12.25	11.00
Aug.	6.03	6.47	7.74	7.74	8.31	9.65	10.00	10.00	9.50	10.75	12.75	12.25	12.25	11.00
Sept.	6.03	6.47	7.74	7.74	8.31	10.00	10.00	9.50	9.50	11.25	12.50	12.25	12.25	11.00
Oct.	6.47	7.23	7.74	7.74	8.31	10.00	10.00	9.50	9.50	11.75	12.25	12.25	12.25	11.00
Nov.	6.47	7.23	7.74	7.97	8.31	10.00	10.00	9.50	9.50	11.75	12.25	12.25	12.25	11.00
Dec.	6.47	7.23	7.74	8.09	8.31	10.00	10.00	9.50	10.25	12.00	12.25	12.25	12.25	11.00
Average	6.14	6.96	7.64	7.79	8.31	9.02	10.04	9.83	10.91	10.94	12.60	12.25	12.25	11.10

1 Seaboard price prior to Oct. 7, 1948. 3 Starting June, 1953, prices reflect new standard of 74 to 76 pct Mn. Prices prior to that converted from older gross ton pricing method and were based on standard of 78 82 pct Mn.

50 PCT FERROSILICON

Cents per 1b contained Si, Carloads, Delivered*

Delivered						
	1955	1956	1957	1958	1959	1960
Jan.	12.00	12.75	13.90	14.20	14.60	14.60
Feb.	12.00	12.75	13.90	14.20	14.60	14.60
Mar.	12.00	12.75	13.00	14.20	14.60	14.60
Apr	11.00	12.75	13.00	14.20	14.60	14.60
May .	11.00	12.75	13.00	14.20	14.60	14.60
June	11.00	12.75	13.00	14.20	14.60	14.60
July	11.00	12.75	13.00	14.20	14.60	14.60
Aug.	11.00	12.75	13.00	14.20	14.60	14.60
Sept.	11.00	13.15	13.00	14.20	14.60	14.60
Oct	11.75	13.50	13.00	14.60	14.60	14.60
Nov.	11.75	13.50	13.00	14.60	14.60	14.60
Dec.	11.75	13.90	13.00	14.60	14.60	14.60
Average	11.43	12.30	13.15	14.30	14.60	14.60

^{*} F.o.b. shipping point after Oct. 1, 1955,

CHEM. BONDED CHROME BRICK

F.o.b. Baltimore, Carloads per 1000*

	1954	1955	1956	1957	1958	1959	1960*
Jan.	\$86.00	\$86.00	\$91.00	\$98.00	\$105.00	\$109.00	\$109.00
Feb.	86.00	86.00	91.00	98.00	105.00	109.00	109.00
Mar.	86.00	86.00	91.60	98.00	105.00	109.00	109.00
Apr.	86.00	86.00	91.00	105.00	105.00	109.00	109.00
May	86.00	86.00	91.00	105.00		109.00	109.00
June	86.00	86.00	91.00	105.00	105.00	109.00	109.00
July	86.00	86.00	91.00	105.00	105.00	109.00	109.00
Aug.	86.00	86.00	98.00	105.00	105.00	109.00	109.00
Sept.	86.00	86.00	98.00	105.00	105.00	109.00	109.00
Oct.	86.00	85.00	98.00	105.00	109.00	109.00	109.00
Nov.	86.00		98.00	105.00	109.00	109.00	620.00
Dec.	86.00	91.00	98.00	105.00	109.00	109.00	620.00
Avg.	86.00	86.83	93.92	103.25	106.00	109.00	620.00
* D	ollars pe	er net t	on befo	re Oct.	1960.		

BONDED MAGNESITE BRICK

F.o.b. Baltimore, Carloads per 1000*

19	54 1955	1956	1957	1958	1959	1960*	
Jan. \$97.	50 \$97.50	\$102.00	\$109.00	\$116.00	\$119.00	\$119.00	
Feb. 97.	50 97.50	102.00	109.00	116.00	119.00	119.00	
Mar. 97.	50 97.50	102.00	109.00	116.00	119.00	119.00	
Apr. 97	.50 97.50	102.00	116.00	116.00	119.00	119.00	
May 97	.50 97.50	102.00	116.00	116.00	119.00	119.00	
June 97	.50 97.50	102.00	116.00	116.00	119.00	119.00	
July 97	.50 97.50	102.00	116.00	116.00	119.00	119.00	
Aug. 97	.50 97.50	109.00	116.00	116.00	119.00	119.00	
Sept. 97	.50 97.50	109.00	116.00	116.00	119.00	119.00	
Oct. 97	.50 97.50	109.00	116.00	119.00	119.00	655.00	
Nov. 97	.50 102.00	109.00	116.00	119.00	119.00	655.00	
Dec. 97	.50 102.00	109.00	116.00	119.00	119.00	655.00	
Avg. 97	.50 98.59	104.92	114.25	116.75	119.00	655.00	
* Doll	ars per tor	before !	Oct., 19	50.			

SILICA BRICK STANDARD GRADE

Mt. Union, Pa., Ensley, Ala., Carloads per 1000 Brick, F.o.b. plant

	1955	1956	1957	1958	1959	1960
Jan.	\$120.00	\$128.00	\$140.00	\$150.00	\$158.00	\$158.00
Feb.	120.00	128.00	140.00	150.00	158.CO	158.00
Mar.	120.00	128.00	140.00	150.00	158.00	158.00
Apr	120.00	128.00	150.00	150.00	158.00	158.00
May	120.00	128.00	150.00	150.00	158.00	158.00
June	120.00	128.00	150.00	150.00	158.00	158.00
July	124.00	128.00	150.00	150.00	158.00	158.00
Aug.	128.00	140.00	150.00	150.00	158.00	158.00
Sept	128.00	140.00	150.00	150.00	158.00	158.00
Oct.	128.00	140.00	150.00	158.60	158.00	158.00
Nov.	128.00	140.00	150.00	158.00	158.00	158.00
Dec	128.00	140.00	150.00	158.00	158.00	158.00
Average	123.66	133.00	147.50	152.00	158.00	158.00

SPIEGELEISEN, 19 TO 21 PCT.

Palmerton, Pa., Carloads, Gross Ton 10 lb

pig							
	1955	1956	1957	1958	1959	1960	
Jan	\$86.00	\$91.50	\$102.50	\$102.50	\$102.50	\$100.00	
Feb	86.00	91.50	102.50	102.50	102.50	100.00	
Mar	86.00	91.50	102.50	102.50	102.50	100.00	
Apr		94.00	102.50	102.50	102.50	100.00	
May	86.00	94.00	102.50	102.50	102.50	100.00	
June		94.00	102.50	102.50	102.50	100.00	
July	86.00	94.00	102.50	102.50	102.50	100.00	
Aug		96.00		102.50	102.50	100.00	
Sept		96.00	102.50	102.50	102.50	100.00	
Oct		99.50	102.50	102.50	102.50	100.00	
Nov	88.00	99.50	102.50	102.50	102.50	100.00	
Dec	88.00	99.50	102.50	102.50	102.50	100.00	
Average	86.45	95.08	102,50	102.50	102.50	100.00	

BURNED MAGNESITE BRICK

F.o.b. Baltimore, Carloads per 1000*

F.O.D. D	Gillinoi	e, cu	110003	hai	1000		
195	4 1955	1956	1957	1958	1959	1960	
Jan. \$109.0	00 \$109.00	\$114.00	\$121.00	\$131.00	\$140.00	\$140.00	
Feb. 109.0		114.00		131.00		140.00	
Mar. 109.0	0 109.00	114.00	121.00	131.00	140.00	140.00	
Apr. 109.0	0 109.00	114.00	131.00	131.00	140.00	140.00	
May 109.0	0 109.00	114.00	131.00	131.00	140.00	140.00	
June 109.0		114.00	131.00	131.00	140.00	140.00	
July 109.0	0 109.00	114.00	131.00	131.00	140.00	140.00	
Aug. 109.0		121.00	131.00	131.00	140.00	140.00	
Sept. 109.0	0 109.00	121.00	131.00	131.00	140.00	140.00	
Oct. 109.0	0 109.00	121.00	131.00	140.00	140.00	715.00	
Nov. 109.0	0 114.00	121.00	131.00	140.00		715.00	
Dec. 109.0	0 114.00	121.00	131.00	140.00	140.00	715.00	
Avg. 109.0	0 109.83	116.92	128.50	133.25	140.00	715.00	
	-						

^{*} Dollars per net ton before October, 1960.

HIGH DUTY FIRE CLAY BRICK

Pa., * Ky., Mo., Ill., Md., Ohio, F.o.b. Plant**

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 1955
 1956
 1957
 1958
 1959
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 Nov. 114.00
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 140.00

 Avg. 110.58
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 124.50
 133.25
 136.25
 140.00
 140.00

* Add \$5.00 for Salina, Pa. ** Carloads per 1000 brick,

Steel Scrap



CHICAGO

Prices of	No.	Scra	p, Per	Gros	s Ton	
	1955	1956	1957	1958	1959	1960
Jan. Feb. Mar. Apr. Miay June	35.50	\$50.10 46.63 48.00 54.00 50.50 44.00	\$57.90 49.00 44.00 39.50 42.00 51.10	\$31.75 37.00 35.25 28.70 31.75 35.10	\$43.00 44.25 40.10 33.50 32.00 34.50	\$40.25 38.06 30.90 31.25 30.10 29.25
July Aug. Sept. Oct. Nov. Dec.	38.00 40.90 41.75 43.25 43.70 49.13	44.50 55.50 59.00 56.90 62.50 65.00	51.75 52.63 46.50 36.50 31.75 30.50	39.25 44.00 44.90 42.50 42.45 33.70	35.50 36.75 39.70 43.25 44.00 40.30	29.88 31.50 29.75 26.50 25.50 25.75°
Average	38.48	53.05	44.43	37.22	38.90	30.72°

"Estimate.

No. 2 Bundles

	1955	1956	1957	1958	1959	1960
Jan	\$24.50	\$40.13	\$44.40	\$22.25	\$31.25	\$27.25
Feb	24.50	37.75	39.75	28.25	31.50	24.00
Mar.	24.50	37.30	37.50	26.00	28.90	18.80
Apr	24.50	41.50	34.00	21.70	21.75	20.38
May	23.13	36.80	34.80	24.25	21.75	20.10
June	23.60	32.75	42.13	27.50	24.50	18.75
July	27.13	34.00	41.50	29.25	24.50	19.25
Aug.	31.50	43.10	40.80	32.00	25.75	21.10
Sept.	31.90	44.75	33.88	31.50	27.10	19.25
Oct.	33.38	42.25	23.70	29.50	30.00	16.50
Nov.	34.19	46.00	20.25	31.50	30.50	16.50
Dec.	39.95	50.25	19.50	31.50	26.50	17,00*
Average	28.56	40.55	34.35	27.93	27.00	19.91

*Estimate.

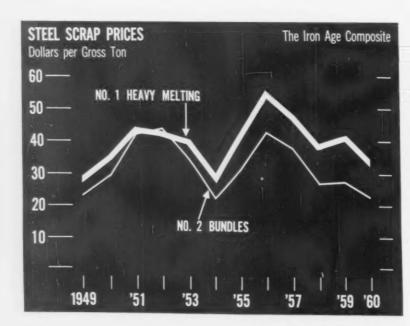
PHILADELPHIA

	1955	1956	1957	1958	1959	1960
Jan.	\$32.87	\$54.10	\$59.50	\$37.13	\$35,75	\$41.50
Feb.	37.00	50.63	57.00	38.00	39.50	39.75
Mar.	38.40	50.40	52.75	38.00	37.30	35,20
Apr.	37.00	54.63	46.88	36.40	33,75	34.50
May	35.60	53.30	50.25	34.00	34.00	34.50
June	38.50	46.75	56.10	33.60	36.70	33.50
July	40.50	48.25	54.00	34.75	39.00	33,50
Aug.	45.50	55.80	51.25	37.75	39.50	34.10
Sept.		58.38	46.38	39.90	41.10	34.50
Oct.	46.50	56.80	37.70	40.50	44.75	33.50
Nov.	47.10	59.25	33.75	37.62	46.00	33.00
Dec.	51.00	62.50	34.00	43.50	42.70	33.50
Average	41.31	54.23	48,30	37.60	39.17	35.08*

No. 2 Bundles

	1955	1956	1957	1958	1959	1960
Jan.	\$26.00	\$45,50	\$49.40	\$26.50	\$24.38	\$25,50
Feb.	28.50	41.63	47.63	27.50	26.00	24.00
Mar	30.80	40.10	42.25	27.50	24.80	22,30
Apr.	28.50	44.13	36.00	25.30	21.75	21.50
May	27.13	42.30	39.50	23.50	21.50	21.10
June	27.50	36.00	48.13	23.50	23.50	19.50
July	31.75	37.25	46.38	23.50	26.75	19.50
Aug.	36.50	44.50	43.00	24.00	27.25	20.50
Sept.	38.50	47.25	37.50	24.50	27.20	22.25
Oct.	37.50	45.63	28.50	25.25	29.00	20.25
Nov.	37.25	49.10	24.75	23.25	30.00	18.50
Dec	42.50	52.13	24.60	23.10	26.90	18.50°
Average	32.70	43.79	38.97	24.78	25.75	21.11*

*Estimate.



Average of Iron Age Scrap Prices Pittsburgh, Chicago, Philadelphia Per Gross Ton

No. I Heavy Melting

	1955	1956	1957	1958	1959	1960
Jan	\$34.62	\$52.33	\$59.37	\$33.88	\$41.08	\$41.83
Feb.	36.16	48.75	53.17	37.17	43.66	39.77
Mar	37.27	49.43	48.50	38.58	40.43	33.67
Apr	36.50	54.88	42.80	32.73	35.08	33.42
May		51.17	46.17	33.50	34.41	32.90
June		45.08	54.23	35.40	37.90	31.25
July	39.50	46,42	54.00	38.25	39.33	31.29
Aug.	43.96	56.10	52.96	42.08	39.91	32.23
Sept.	44.25	58.58	47.29	43.30	41.70	31.92
Oct.		56.80	37.37	42.67	44.83	29.67
Nov.	45.47	61.67	32.83	41.70	45.67	28.33
Dec.	50.42	64.59	32.33	39.90	41.90	28.66*
Average	40.19	53.82	46.75	38.09	40.49	32.91*
2 Echimata						

No. 2 Bundles

	1955	1956	1957	1958	1959	1960
Jan	\$26.33	\$43.29	\$47.43	\$25.83	\$29.21	\$28.17
Feb.	27.46	40.13	44.04	28.75	30.33	25.75
Mar.	28.83	40.03	39.58	27.50	28.27	22.20
Apr.	27.17	43.88	34.75	24.03	23.33	22.88
May	25.67	39.73	38.07	24.67	23.33	22.70
June	26.07	35.08	45.84	26.17	25.50	20.92
July	30.46	36.42	44.88	27.58	26.92	21.09
Aug.	35.17	44.40	43.17	29.67	27.50	22.03
Sept.	35.77	46.50	37.13	29.10	28.20	22.25
Oct.	36.13	44.88	27.80	28.75	30.50	20.09
Nov.	35.73	48.33	24.68	29.33	31.33	18.50
Dec.	41.32	51.63	24.20	28.70	28.23	18.75°
Average	31.34	42.86	37.63	27.53	27.72	22.11*

PITTSBURGH

Prices of No. I Scrap, Per Gross Ton

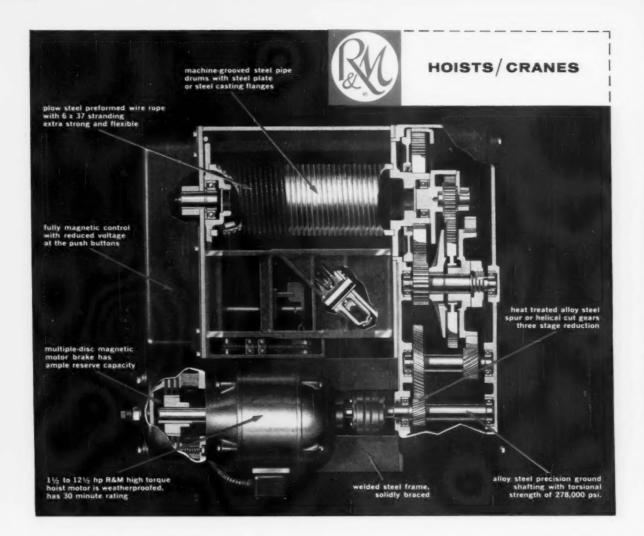
	1955	1956	1957	1958	1959	1960
Jan.	\$36.50	\$52.50	\$60.70	\$32.75	\$44.50	\$43.75
Feb.	37.50	49.00	53.50	38.50	47.25	41.50
Mar.		49.90	48.75	36.50	43.90	34.90
Apr		56.00	42.00	33.10	38.00	34.50
May	34.70	49.70	46.25	34.75	37.25	34.10
June		44.50	55.50	37.50	42.50	31.00
July .	48.00	46,50	56.25	40.75	43.50	30.50
Aug.		57.00	55.00	44.50	43.50	31.10
Sept.		58.38	49.00	44.50	44.30	31.50
Oct.		56,70	37.90	45.00	46.50	29.00
Nov.		63.25	33.00	44.75	47.00	26.00
Dec	51.13	66.25	32.50	42.50	42.70	26.75
Average	40.87	54.14	47.53	39.42	43.40	32.92

No. 2 Bundles

	1955	1956	1957	1958	1959	1960
Jan.	\$28.50	\$44.25	\$48.50	\$28.75	\$32.00	\$31.75
Feb.	29.38	41.00	44.75	30.50	33.50	29.25
Mar.	31.20	42,70	39.00	29.00	31.10	25.50
Apr.	28.50	46.00	34.25	25.10	26.50	26.75
May .	26.75	40.10	39.90	26.25	26.75	26.90
June	27.10	36.50	47.25	27.50	28.50	24.50
July	32.50	38.00	46.75	30.00	29.50	24.50
Aug.	37.50	45.60	45.70	33.00	29.50	24.50
Sept.	36.90	47.50	40.00	31.30	30.30	25.25
Oct.	37.50	46.75	31.30	31.50	32.50	23.50
Nov.	35.75	49.90	29.00	33.25	33.50	20.50
Dec.	41.50	52.50	28.50	31.50	31.30	20.75*
Average	32.76	44.23	39.57	29.89	30.41	25.30°

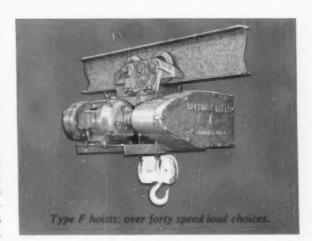
*Estimate.

scrap Forecast: During '61, dealers and brokers will probably ship 32 million tons of scrap to domestic mills and foundries and export markets. That's the prediction of William S. Story, asst. exec. vice president, Institute of Scrap Iron & Steel. The total could reach 34 million tons, he adds. This compares with about 30 million tons shipped in '60.



LOW HEADROOM HOIST FOR HARD USE

Robbins & Myers heavy duty Type F hoists have compact, beam-hugging profiles to save overhead space in your plant. For example, the F-2 has a headroom of only 17", yet provides 2 ton lifts on a path of steel extending from beam to hook. And F hoists are built for toughest use: frame is welded steel, alloy steel gears are heat treated, ball and roller bearings are used throughout. Weatherproof R&M 220/440 v.a.c. motors-to 121/2 hp-drive through three gear reductions. These are the hoists to choose for day-after-day production lifting where maximum dependability is important. You can standardize on F hoists throughout your plant because the line is as economical as it is broad: capacities-1/2 to 10 tons, mounting-lug, plain or geared hand trolley, 3 types of motorized trolleys. Request Bulletin 920. Hoist & Crane Division of Robbins & Myers, Inc., Springfield, Ohio or Brantford, Ontario.



ROBBINS & MYERS

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Did you know there is a guaranteed way to clean stack gases?

Cleaning your gases is not a simple task. A careful analysis must be made of flue gas temperature, dust composition, and such things as dust loadings and gas volume. It takes a real crew of experts to make sense out of the data, then design, manufacture, and install equipment with guaranteed gas-cleaning efficiency.

Koppers has over 50 years of industrial gas-cleaning experience. They're experts. Koppers designed and installed the first successful electrostatic precipitators for hot metal open hearth furnaces.

Two Koppers divisions work cooperatively to provide effective gas-cleaning installations. The Engineering and Construction Division can design and install a gas-cleaning system which will eliminate fumes, acid mist, ashes, or dust, as well as recover valuable materials at low cost per cubic foot of gas processed. Precipitators made by the Metal Products Division can be used with any steclmaking or ironmaking furnace, and they operate at close to 100% efficiency, with very little maintenance required.

Two outstanding examples of Koppers installations are the open hearth furnaces at Fairless Works of United States Steel Corporation, and the blast furnaces at Great Lakes Steel Division of National Steel Corporation. A completely different system was designed and installed by Koppers for the McLouth Steel Corporation. Here, they used pressure-type disintegrators to clean gases from electric furnaces and new oxygen converters. It proved efficient for both steelmaking processes. And Koppers is now installing seven additional electrostatic precipitators and ten additional waste heat boilers to control the gas discharge from open hearth furnaces at the Pittsburgh Works of Jones & Laughlin Steel Corporation.

Koppers will be glad to analyze your operation, too. Write to Koppers Company, Inc., Engineering and Construction Division, Pittsburgh 19, Pennsylvania.





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1961 Meetings And Conventions

Major meetings and conventions of metalworking's trade associations and technical societies in 1961 are listed below. Telephone numbers of association headquarters are included.

JANUARY

AMERICAN RAILWAY CAR INSTI-TUTE—Annual meeting, one day during the third week of January. Institute headquarters are at 200 E. 42nd St., New York, Tel: YU 5-5940.

ASSN. OF ROLLER & SILENT CHAIN MFRS.—Meeting Jan. 26-27, The Drake Hotel, Chicago. Association headquarters are at 3343 Central Ave., Indianapolis, Ind. Tel: WA 5-5635.

COMPRESSED GAS ASSN., INC.—Annual meeting, Jan. 23-24, Waldorf-Astoria, New York. Association head-quarters are at Eleven West Forty-Second St., New York. Tel: LA 4-4796.

CUTTING TOOL MANUFACTURERS ASSN.—Annual business meeting, Jan. 26, Harmonic Club, Detroit. Association headquarters are at 1216 Penobscott Bidg., Detroit. Tel: WO 1-0080.

HOIST MANUFACTURERS ASSN., INC.
—Annual meeting, Jan. 10, Statler-Hilton Hotel, Cleveland, Association headquarters are at One Thomas Circle, Washington, Tel: ME 8-3728.

INDUSTRIAL HEATING EQUIPMENT ASSN., INC.—Annual winter meeting, Jan. 23-24, Dearborn, Mich. Association headquarters are at 2000 K St., N.W., Washington. Tel: FE 8-6655.

INSTITUTE OF SCRAP IRON & STEEL, INC.—National convention, Jan. 8-11, Hotel Fontainebleau, Miami Beach, Fla. Institute headquarters are at 1729 H. St., N.W., Washington. Tel: ME 8-6171.

INSTRUMENT SOCIETY OF AMERICA

—29th Annual meeting, Jan. 23-25,
Hotel Astor, New York. Society headquarters are at 213-6th Ave., Pittsburgh. Tel: AT 1-3171.

MINING AND METALLURGICAL SO-CIETY OF AMERICA—Annual dinner, Jan. 25, Mining Club, New York. Society headquarters are at Eleven Broadway, New York. Tel: WH 4-5229.

NATIONAL TOOL & DIE MANUFAC-TURERS ASSN.—Winter Board meeting, Jan. 24-28, Biltmore Hotel, Palm Beach, Fla. Association headquarters are at 907 Public Square Bldg., Cleveland. Tel: MA 1-5998.

SOCIETY OF AUTOMOTIVE ENGINEERS, INC.—Annual meeting, Jan. 9-13, Cobo Hall and Convention Area, Detroit. Society headquarters are at 485 Lexington Ave., New York. Tel: OX 7-2340.

SOCIETY OF PLASTIC ENGINEERS, INC.—Annual technical meeting, Jan. 24-27, Shoreham & Park Sheraton, Washington. Society headquarters are at 55 Prospect St., Stamford, Conn. Tel: F1 8-7528.

STEEL PLATE FABRICATORS ASSN— Annual meeting, Jan. 18-19-26, Lago Mar Hotel, Fort Lauderdale, Fla. Association headquarters are at 105 W, Madison St. Chicago. Tel: DE 2-1682.

FEBRUARY

AMERICAN FOUNDRYMEN'S SOCIETY—Wisconsin regional foundry conference, Feb 3-10, Hotel Schroeder, Milwaukee, Society headquarters are at Golf and Wolf Rds., Des Plaines, Tel: VA 4-9181.

ASSN. OF IRON AND STEEL ENGI-NEERS—Western meeting, Feb. 27-28-Mar. 1, Hotel Statler, Los Angeles. Association headquarters are at 1010 Empire Bldg., Pittsburgh. Tel: AT 1-6323.

THE METALLURGICAL SOCIETY OF AIME—Annual meeting, Feb. 26-Mar. 2. Ambassador and Chase-Park-Plaza Hotels, St. Louis. Society headquarters are at 29 West 39th St., New York, Tel: DE 6,9290

NATIONAL ASSOCIATION OF MANU-FACTURERS—Meeting Feb. 15-17, The Riviera Hotel, Palm Springs, Calif. Association headquarters are at Two-48th St., New York, Tel; MU 8-4200.

MARCH

AMERICAN HOT DIP GALVANIZERS ASSN., INC.—Annual meeting, Mar. 22-23-24, The Royal Orleans, New Orleans, Association headquarters are at 5225 Manning Place, N.W., Washington, Tel. EM 2-5655.

AMERICAN MACHINE TOOL DISTRIB-LTORS ASSN.—Spring meeting, Mar. 23-24-25, Hotel Mark Hopkins, San Francisco, Association headquarters are at 1500 Massachusetts Ave., N.W., Washington, Tel; AD 2-3900.

CAN MANUFACTURERS INST., INC.— Annual & Board meeting, Mar. 6, Waldorf-Astoria, New York. Institute headquarters are at 821-15th St., N.W., Washington. Tel: RE 7-6242.

INDUSTRIAL DIAMOND ASSN. OF AMERICA, INC.—Annual meeting and convention, Mar. 13-17, Hollywood Beach Hotel, Hollywood, Fla. Association headquarters are at Box 175, Fompton Plains, N. J. Tel: TE 5-4920.

MALLEABLE FOUNDERS SOCIETY— Technical and Operating Conference, Mar. 1-2, Pick-Carter Hotel, Cleveland. Society headquarters are at 781 Union Commerce Bldg., Cleveland. Tel: MA 1-1590.

NATIONAL ASSN. OF CORROSION EN-GINEERS—17th Annual conference & Corrosion Show, Mar. 13-17, Buffalo, N. Y. Association headquarters are at 1961 M & M Bldg., Houston. Tel: CA 4-6198.

PRESSED METAL INSTITUTE—Spring technical meeting, Mar. 22-23-24, Belmont Plaza Hotel, New York. Institute headquarters are at 3673 Lee Rd., Cleveland. Tel: SK 1-8855.

SOCIETY FOR NON - DESTRUCTIVE TESTING — Western regional convention, Mar. 20-24, Ambassador Hotel, Los Angeles. Society headquarters are at 1109 Hinman St., Evanston. Tel; UN 4-2842.

STEEL FOUNDERS' SOCIETY OF AMERICA—Annual meeting, Mar. 11-12-13-14, Drake Hotel, Chicago. Society headquarters are at 606 Terminal Tower, Cleveland. Tel: MA 1-7350.

APRIL

AMERICAN SOCIETY OF LUBRICA-TION ENGINEERS—Annual meeting and exhibit, Apr. 11-12-13, Bellevuewith men who know cutting tools...it's MORSE everytime



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MEETINGS

- Stratford, Phila. Society headquarters are at 5 North Wabash Ave., Chicago, Tel: DE 2-1298.
- AMERICAN WELDING SOCIETY Annual meeting, Apr. 17-21, Hotel Commodore, New York. Society headquarters are at 33 W. 39th St., New York. Tel: PE 6-9220.
- AMERICAN WELDING SOCIETY, INC.—Welding Exposition, Apr. 18-20, N. Y. Coliseum, New York, Society headquarters are at 33 W, 39th St., New York, Tel: PE 6-9220.
- ASSN. OF IRON AND STEEL ENGI-NEERS—Spring conference, Apr. 24-25-26, Jefferson Hotel, St. Louis, Association headquarters are at 1010 Empire Bldg., Pittsburgh. Tel: AT 1-6323.
- COPPER & BRASS WAREHOUSE ASSN., INC.—Annual meeting, Apr. 11-14, Colorado Springs, Colo. Association headquarters are at 1990 Arch St., Phila. Tel: LO 4-3484.
- GAS APPLIANCE MANUFACTURERS ASSN., INC.—Annual meeting, Apr. 5-7, Boca Raton Hotel and Club, Boca Raton, Fla. Association hendquarters are at 66 E. 42nd St., New York, Tel: MU 2-8743.
- THE METALLURGICAL SOCIETY OF AIME—44th National Open Hearth Steel Conference, Apr. 19-12, Sheraton Hotel, Phila. Society headquarters are at 29 West 39th St., New York. Tel: PE 6-9220.
- METAL POWDER INDUSTRIES FED-ERATION — 17th Annual technical meeting and Powder metallurgy show, Apr. 24-25-26, Hotel Sheraton-Cleveland, Cleveland. Federation headquarters are at 60 E, 42nd St., New York. Tel; MU 2-7889.
- NATIONAL SCREW MACHINE PROD-UCTS ASSN.—Annual industry meeting, Apr. 30-May 3, Somerset Hotel, Boston. Association headquarters are at 2860 E. 130th St., Cleveland. Tel; SK 1-0909.
- OFFICE EQUIPMENT MANUFACTURERS INSTITUTE—Business Equipment Exposition, Apr. 17-21. New York Coliseum, New York. Institute headquarters are at 777 Fourteenth St., N.W., Washington, Tel: ST 3-5746.
- RAIL STEEL BAR ASSN.—Annual meeting, Apr. 17-18, Biltmore Hotel, New York. Association headquarters are at 38 South Dearborn St., Chicago, Tel; FR 2-2873.
- SCIENTIFIC APPARATUS MAKERS ASSN.—Annual meeting, Apr. 23-27, The Greenbrier, White Sulphur Springs, W. Va. Association headquarters are at 20 North Wacker Drive, Chicago. Tel; ST 2-0277.
- STEEL SHIPPING CONTAINER INST., INC.—Annual meeting, Apr. 11-13, Kenilworth Hotel, Miami Beach, Fla. Institute headquarters are at 600 Fifth Ave., New York, Tel: CO 5-7882.

MAY

- AMERICAN FOUNDRYMEN'S SOCIETY -65th Annual castings congress & exposition, May 8-12, Brooks Hall, Clvic Auditorium, San Prancisco. Society headquarters are at Golf and Wolf Rds., Des Plaines. Tel; VA 4-6181.
- AMERICAN IRON & STEEL INST.— General meeting, May 24-25, Waldorf-Astoria Hotel, New York, Institute headquarters are at 150 East 42nd St., New York, Tel: OX 7-590e.
- AMERICAN MINING CONGRESS—Coal convention & exposition, May 15-18, Cleveland. Congress headquarters are at 1102 King Bidg., Washington. Tel: FE 8-2900.
- AMERICAN SOCIETY OF TOOL ENGINEERS Engineering Conference and Exhibit, May 22-26, Statler Hotel and New York Coliseum, New York Society headquarters are at 10700 Puritan Ave., Detroit. Tel: UN 4-7300.

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MEETINGS

- AMERICAN SUPPLY & MACHINERY MFRS, ASSN, INC.—Triple Industrial Supply Convention, May 23-24-25, Atlantic City, N. J. Association headquarters are at 2130 Keith Bidg., Cleveland, Tel: CH 1-7333.
- ANTI-FRICTION BEARING MANUFAC-TURERS ASSN., INC.—Annual meeting, May 23-25, Sea View Country Club, Absecon, N. J. Association headquarters are at 60 East 42nd Street, New York, Tel: MU 7-5028.
- CONCRETE REINFORCING STEEL IN-STITUTE — Annual meeting, May 29-June 3, The Greenbrier, White Sulphur Springs, W. Va. Institute headquarters are at 28 S. Dearborn St., Chicago, Tel: FR 2-5660

- COPPER & BRASS RESEARCH ASSN.— Annual meeting, May 14-17, The Homestead, Hot Springs, Va. Association beadquarters are at 420 Lexington Ave., New York, Tel: MU 6-2470.
- DESIGN ENGINEERING SHOW—May 22-25, Cobo Hall, Detroit, Show mgt.: Clapp & Poliak, Inc., 341 Madison Ave., New York 17.
- DUCTILE IRON SOCIETY Annual meeting, week of May 8, San Francisco. Society headquarters are at P. O. Box 858, Cleveland,
- ELECTRONIC INDUSTRIES ASSN.

 37th Annual convention, May 24-26,
 Pick-Congress Hotel, Chicago, Association headquarters are at 1721 DeSales
 St., N.W., Washington, Tel: NA 8-3902
- INDUSTRIAL HEATING EQUIPMENT ASSN., INC.—Spring meeting, May 21-24, Hot Springs, Va. Association headquarters are at 2000 K St., N.W., Washington, Tel: FE 8-6655.

- LEAD INDUSTRIES ASSN. & AMERI-CAN ZINC INSTITUTE (held jointly) Annual meeting, May 1-3, Drake Hotel, Chicago, Association and Institute headquarters are at 292 Madison Ave., New York, Tel: OR 9-6020.
- MACHINERY DEALERS NATIONAL ASSN.—Annual convention, May 15-16-17-18, Shoreham Hotel, Washington, Association headquarters are at 1346 Connecticut Ave., N.W., Washington, Tel: CO 5-1336.
- MAGNESIUM ASSN.—Annual meeting, May 21-24, The Greenbrier, White Sulphur Springs, W. Va. Association headquarters are at 122 E, 42nd St., New York, Tel: OX 7-2974.
- THE METALLURGICAL SOCIETY OF AIME-15th New England regional conference, May 18-19, Van Curler Hotel, Schenectady. Society headquarters are it 23 West 39th St., New York, Tel: PE 6-9220.
- NATIONAL MACHINE TOOL BUILD-ERS ASSN.—Spring meeting, May 4-5, Edgewater Beach Hotel, Chicago, Association headquarters are at 2129 Wisconsin Ave., N. W., Washington, Tel: FE 7-8270.
- SOCIETY FOR NON-DESTRUCTIVE TESTING — Eastern regional convention, May 17-18-19, Mt. Royal Hotel, Montreal, P.Q., Canada. Society headquarters are at 1109 Hinman St., Evanston, Tel: UN 4-2842.
- STEEL SERVICE CENTER INSTITUTE
 —Annual meeting, May 14-17, Statler-Hilton Hotel, Washington. Institute headquarters are at 546 Terminal Tower, Cleveland. Tel: CH 1-3468.
- WIRE REINFORCEMENT INSTITUTE

 —Annual meeting, May 29-20, The
 Greenbrier, White Sulphur Springs, W.
 Va. Institute headquarters are at the
 National Press Bldg., Washington, Tel:
 NA 8-3636.

JUNE

- ALLOY CASTING INSTITUTE—Annual meeting, June 18-20. Institute head-quarters are at 1001 Franklin Ave., Garden City, N. Y. Tel: PI 6-3970.
- AMERICAN ELECTROPLATERS' SO-CIETY—48th Annual convention, June 18-23, Statler-Hilton Hotel, Boston. Society headquarters are at 445 Broad St., Newark, N. J. Tel: HU 2-3400.
- AMERICAN GEAR MANUFACTURERS ASSN.—Annual meeting, June 4-7, The Homestead, Hot Springs, Va. Association headquarters are at One Thomas Circle, Washington. Tel: ST 3-3621.
- AMERICAN SOCIETY FOR TESTING MATERIALS — Annual meeting, June 25-39, Chalfonte-Haddon Hall, Atlantic City, Society headquarters are at 1916 Race St., Phila. Tel: LO 3-5315.
- THE AMERICAN SOCIETY OF ME-CHANICAL ENGINEERS — Summer annual meeting, June 11-15, Statler-Hilton Hotel, Lox Angeles. Society headquarters are at 29 West 23th St., New York, Tel: LE 2-5883.
- DROP FORGING ASSN.—Annual meeting of members, June 14-17, The Greenbrier, White Sulphur Springs, W. Va. Association headquarters are at 1121 Illuminating Bldg., Cleveland. Tel. SU. 1-6260.
- INSTITUTE OF APPLIANCE MANU-FACTURERS—Annual meeting, June 5-6-7, Netherland Hilton Hotel, Cincinnati. Institute headquarters are at Shoreham Hotel, Washington. Tel AD 2-8823.
- MALLEABLE FOUNDERS SOCIETY— Annual meeting, June 8-9, The Broadmoor, Colorado Springs, Colo. Society headquarters are at 781 Union Commerce Bidg., Cleveland, Tel: MA 1-1690.
- THE MATERIAL HANDLING INSTI-TUTE, INC.—Meeting, June 18-19-20, Pittsburgh Hilton, Pittsburgh. Institute headquarters are at One Gateway Center, Pittsburgh. Tel: GR 1-1580.
- NATIONAL ASSN. OF PURCHASING AGENTS—Convention and Inform-Ashow, June 4-7, The Conrad Hilton, Chicago, Association headquarters are at 11 Park Place, New York. Tel: CO 7-3677.

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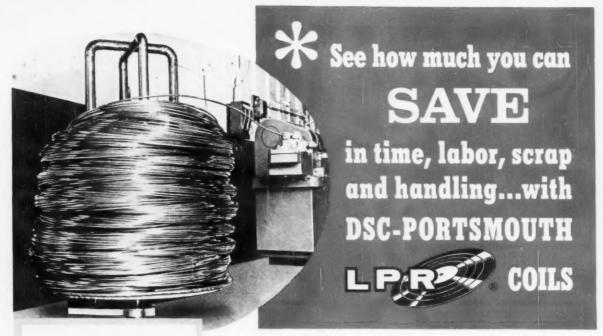
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MEETINGS

NATIONAL TOOL & DIE MANUFAC-TURERS ASSN.—Summer Board meeting. June 21-24, Schroeder Hotel, Milwaukee. Association headquarters are at 907 Public Square Bidg., Cleveland. Tel: MA 1-5988.

PRESSED METAL INSTITUTE — Sales conference, June 15-16, Bedford Springs Hotel, Bedford Springs, Pa. Institute headquarters are at 3673 Lee Rd., Cleveland, Tel: SK 1-8855.

JULY

CAST IRON PIPE RESEARCH ASSN.— Annual meeting, July 26-27, Seaview Country Club, Absecon, N. J. Association headquarters are at Prudential Plaza—Suite 3400, Chicago. Tel: WH 4-1126.

AUGUST

THE METALLURGICAL SOCIETY OF AIME—Semiconductors conference, Aug. 20-Sept. 1, Ambassador Hotel, Los Angeles. Society headquarters are at 29 West 39th St., New York, Tel; PE 6-9220.

SEPTEMBER

AMERICAN DIE CASTING INSTITUTE, INC. AND THE DIE CASTING RE-SEARCH FOUNDATION — Annual meeting, Sept. 27-28. Edgewater Beach Hotel, Chicago. Institute headquarters are at 366 Madison Ave., New York. Tel: MU 2-2925.

AMERICAN WELDING SOCIETY—Fall meeting, Sept. 25-28, Adolphus Hotel, Dallas, Texas. Society headquarters are at 23 W. 39th St., New York. Tel: PE 6-9220.

ASSN. OF IRON AND STEEL ENGINEERS—Annual convention, Sept. 25-26-27-28, Penn-Sheraton Hotel, Pittsburgh. Association headquarters are at 1010 Empire Bldg., Pittsburgh. Tel: AT 1-6323.

NON-FERROUS FOUNDERS' SOCIETY
—Annual meeting, Sept. 17-21, Shawnee
Inn, Shawnee-on-the-Delaware, Pa, Society headquarters are at University
Bldg., 1604 Chicago Ave., Evanston, Ill.
Tel: DA 8-4175.

PRESSED METAL INSTITUTE—Annual meeting, Sept. 24-28, The Grand Hotel, Point Clear, Ala. Institute headquarters are at 3673 Lee Rd., Cleveland, Tel; SK 1-8855.

OCTOBER

AMERICAN COKE & COAL CHEMI-CALS INST.—Annual meeting, Oct. 23-24, The Greenbrier, White Sulphur Springs, W. Va. Institute headquarters are at 711 Fourteenth St., N.W., Washington. Tel; ST 3-0454.

AMERICAN GAS ASSN.—Annual meeting, Oct. 1-4, Dallas, Texas. Association headquarters are at 420 Lexington Ave., New York, Tel: MU 3-8200.

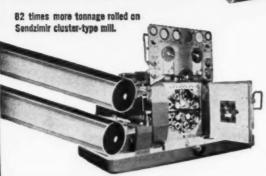
AMERICAN MACHINE TOOL DISTRIB-LTORS ASSN.—Annual meeting, Oct. 1-5-6, Penn-Sheraton Hotel, Pittsburgh, Pa. Association headquarters are at 1500 Massachusetts Ave., N.W., Washington, Tel: AD 2-3900.

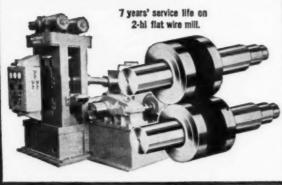
AMERICAN SOCIETY FOR METALS— Metal show, Oct. 21-27, Detroit. Society headquarters are at Metals Park, Novcity, Ohio. Tel: ED 8-5151.

AMERICAN SOCIETY OF LUBRICA-TION ENGINEERS—8th conference, Oct. 17-18-19, Hotel Morrison, Chicago. Society headquarters are at 5 North Wabash Ave., Chicago. Tel: DE 2-1298.

AMERICAN SOCIETY OF TOOL ENGINEERS—Semi-annual conference, Oct. 25-27, The Royal York Hotel, Toronto, Canada. Society headquarters are at 167-99 Puritan Ave., Detroit, Tel., UN 4-7399.







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MEETINGS

- AMERICAN STANDARDS ASSN.—12th National conference, Oct. 10-11-12, Rice Hotel, Houston. Association headquarters are at 70 E. 45th St., New York. Tel: MU 3-3058.
- CONVEYOR EQUIPMENT MANUFAC-TURERS ASSN.—28th Annual meeting, Oct. 7-10, Ponte Vedra Inn. Ponte Vedra, Fla. Association headquarters are at No. 1 Thomas Circle, Washington. Tel: RE 7-3584.
- FOUNDRY EQUIPMENT MANUFAC-TURERS ASSN., INC. — Meeting Oct. 19-20-21, Greenbrier Hotel, White Sulphur Springs, W. Va. Association headquarters are at One Thomas Circle, Washington, Tel: EX 3-0073.
- GRAY 1RON FOUNDERS' SOCIETY, INC.—33rd Annual meeting, Oct. 18-20, Royal York Hotel, Toronto, Ontario, Canada. Society headquarters are at 930 National City-E. 6th Bldg., Cleveland. Tel: PR 1-8480.
- INDUSTRIAL TRUCK ASSN.—Annual meeting, Oct. 29-30-31, The Greenbrier, White Sulphur Springs, W. Va. Association headquarters are at One Gateway Center, Pittsburgh, Tel: GR 1-1580.
- MAGNESIUM ASSN.—Annual convention, Oct. 22-24, Belmont Plaza, New York. Association headquarters are at 122 E. 42nd St., New York. Tel: OX 7-2974.
- THE MATERIAL HANDLING INSTI-TUTE, INC.—Annual meeting, Oct. 29-30-31, The Greenbrier, White Sulphur

- Springs, W. Va. Institute headquarters are at One Gateway Center, Pittsburgh. Tel: GR 1-1580.
- NATIONAL ASSN. OF SHEET METAL DISTRIBUTORS—Annual meeting, Oct. 22-25, Hotel Dennis, Atlantic City, N. J. Association headquarters are at 1900 Arch St., Phila. Tel: LO 4-3484.
- NATIONAL METAL TRADES ASSN.—62nd Convention, Oct. 31-Nov. 1, The Hotel Commodore, New York. Association headquarters are at 222 West Adams St., Chicago. Tel: ST 2-2940.
- NATIONAL SCREW MACHINE PROD-UCTS ASSN.—Fall membership meeting, Oct. 12-15, The Greenbrier, White Sulphur Springs, W. Va. Association headquarters are at 2860 E. 130th St., Cleveland. Tel: SK 1-0909.
- NATIONAL TOOL & DIE MANUFAC-TURERS ASSN.—Annual convention, Oct. 24-28, Huntington-Sheraton Hotel, Pasadena, Callf. Association headquarters are at 907 Public Square Bldg., Cleveland, Tel: MA 1-5988.
- PORCELAIN ENAMEL INSTITUTE—30th Annual meeting, Oct. 4-8, The Greenbrier, White Sulphur Springs, W. Va. Institute headquarters are at 1145-19th St., N.W., Washington, Tel: FE 8-5520.
- RAIL STEEL BAR ASSN.—Semi-annual meeting, Oct. 9-10, Drake Hotel, Chicago. Association headquarters are at 38 South Dearborn St., Chicago. Tel: FR 2-2873.
- ROLLING MILL MACHINERY AND EQUIPMENT ASSN., Annual meeting, Oct. 9, Duquesne Club, Pittsburgh. Association headquarters are at Farmers Bank Bldg., Pittsburgh. Tel: AT 1-0908.
- SOCIETY FOR NON DESTRUCTIVE TESTING—National (21st) convention, Oct. 23-27, Detroit. Society headquarters are at 1109 Hinman St., Evanston. Tel: UN 4-2842.
- WIRE ASSN. Annual convention. Oct. 23-26, French-Lick Sheraton, French Lick, Ind. Association headquarters are at 453 Main St., Stamford. Tel: DA 3-0482.

NOVEMBER

- THE AMERICAN SOCIETY OF ME-CHANICAL ENGINEERS—Winter annual meeting, Nov. 26-Dec. 1, Statler Hilton Hotel, New York, Society headquarters are at 29 West 39th St., New York, Tel: LE 2-5883.
- NATIONAL FOUNDRY ASSN.—63rd Annual meeting, Nov. 15-17, Savoy-Hilton Hotel, New York. Association head-quarters are at 4321 St. Charles Rd., Bellwood, Ill. Tel: LI 7-7986.
- NATIONAL MACHINE TOOL BUILD-ERS ASSN.—Annual meeting, Nov. 14-15-16, Americana Hotel, Bal Harbour, Fla. Association headquarters are at 2139 Wisconsin Ave., N.W., Washington. Tel: FE 7-8270.
- STEEL FOUNDERS' SOCIETY OF AMERICA — Technical and operating conference, Nov. 13-14-15, Hotel Carter, Cleveland. Society headquarters are at 506 Terminal Tower, Cleveland. Tel: MA 1-735-0.

DECEMBER

- AMERICAN INSTITUTE OF CHEMICAL ENGINEERS — 54th Annual meeting, Dec. 3-6, Hotel Commodore, New York, Institute headquarters are at 25 W, 45th St., New York, Tel; CO 5-7330.
- AMERICAN ORDNANCE ASSN.—43rd Annual industrial preparedness meeting. Dec. 6, Waldorf-Astoria Hotel, New York, Association headquarters are at Mills Bldg., Washington. Tel: DI 7-1250.
- THE METALLURGICAL SOCIETY OF AIME—19th Electric Furnace Conference, Dec. 6-8, Sheraton Hotel, Phila. Society headquarters are at 29 West 39th St., New York. Tel: PE 6-9220.
- SPRING MANUFACTURERS ASSN.— Annual meeting, Dec. 5-6, Biltmore Hotel, New York. Association headquarters are at Box 1440, Bristol, Conn. Tel: LU 3-4123.

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Revised Directory Of Trade Associations

This 1961 directory lists trade associations and technical societies in metalworking.

Along with headquarters addresses and society officers, telephone numbers are listed for the first time.

Aerospace Industries Assn. of America 610 Shoreham Bldg., Washington S. D. C. Pres.: General Orval R. Cook, USAF Tel: DI 7-2315

Air Conditioning and Refrigeration Institute 1346 Connecticut Ave., N.W., Washington 6, D. C. Managing Dir.: G. S. Jones, Jr. Tel: CO 5-0405 Air Moving & Conditioning Assn., Inc. 2159 Guardian Bldg., Detroit 26, Mich. Exec. Vice Pres.: Marshall F. Allen

Alloy Casting Institute 1001 Franklin Ave., Garden City, N. Y. Exec. Vice Pres.: E. A. Schoefer Tel: PI 6-3970

The Aluminum Assn. 420 Lexington Ave., New York 17, N. Y. Exec. Secy.: Donald M. White Tel: OR 9-5580

Aluminum Extruders Council 1015 Chestnut St., Philadelphia, Pa. Exec. Secy.: Walter H. Gebhart Tel: WA 3-1262

Aluminum Smelters Research Institute 20 N. Wacker Drive, Chicago 6. III. Secy.: Carl H. Burton Tel: RA 6-1475

Aluminum Wares Assn. 1008 Park Bldg., Pittsburgh 22, Pa. Secy.: Stuart J. Swensson Tel: AT 1-8550 Aluminum Window Manufacturers Assn. 630 Third Ave., New York 17, N. Y. Exec. Secy.: Donald V. Reed Tel: MU 7-0994

American Boiler Manufacturers Assn. 1180 Raymond Blvd., Newark 2, N. J. Mgr.: H. C. Aldrich

American Bureau of Metal Statistics 50 Broadway, New York, N. Y. Treas.: H. Fasting Tel: WH 4-1870

American Coke & Coal Chemicals Institute 711 Fourteenth St., N.W., Washington 5, D. C. Exec. Secy.: Bernard M. Fitzgerald Tel: ST 3-0454

American Die Casting Institute 366 Madison Ave., New York 17, N. Y. Secy.: David Laine Tel: MU 2-2925

American Electroplaters' Society 445 Broad St., Newark 2. N. J. Exec. Secy.: John P. Nichols Tel: HU 2-3400

American Foundrymen's Society Golf and Wolf Rds., Des Plaines, Ill. Gen'l Mgr.: W. W. Maloney Tel: VA 4-0181

American Gas Assn.
420 Lexington Ave., New York 17, N. Y.
Managing Dir.: C. S. Stackpole
Tel: MU 3-8200

American Gear Manufacturers Assn.
One Thomas Circle, Washington 5, D. C.
Exec. Dir.: John C. Sears
Tel: ST 3-3621

American Hardware Manufacturers Assn. 342 Madison Ave., New York 17, N. Y. Secy.: A. L. Faubel

American Home Laundry Manufacturers' Assn. 20 N. Wacker Dr., Chicago G, III. Exec. Dir.: Guenther Baumgart Tel: AN 3-5814

American Hot Di Galvanizers Assn., Inc. 5525 Manning "lace, N.W., Washington 16, D. C. Secy. Treas.: C. E. Perry Tel: EM 2-5655

American Institute of Chemical Engineers 25 W. 45th St., New York, N. Y. Exec. Secy.: V. J. Van Tel: CO 5-7330

American Institute of Steel Construction, Inc., 101 Park Ave., New York 17, N. Y. Exec. Vice Pres.: L. Abbett Post Tel: MU 5-7374

American Iron and Steel Institute 150 East 42nd St., New York 17, N. Y. Exec. Vice Pres.: Max D. Howell Tel: 0X 7-5900

American Iron Ore Assn. 600 Bulkley Bldg., Cleveland 15, Ohio Pres.: Hugo E. Johnson Tel: CH 1-8261

American Machine Tool Distributo's Assn. 1500 Massachusetts Ave., N.W., Washington 5, D. C. Exec. Vice Pres.: James C. Kelley Tel: AD 2-3900

American Manganese Producers Assn. National Press Bldg., Washington 4, D. C. Pres.: J. C. Adkerson Tel: NA 8-9180

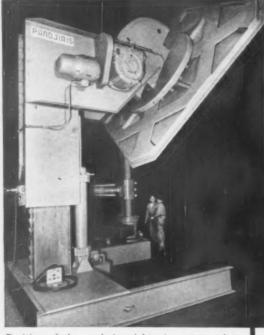
American Mining Congress 1102 Ring Bldg., Washington 6, D. C. Exec. Vice Pres.: Julian D. Conover Tel: FE 8-2900

American Ordnance Assn.
Mills Bldg., Washington 6, D. C.
Exec. Vice Pres.: L. A. Codd
Tel: DI 7-1250

American Railway Car Institute 200 East 42nd St., New York 17. N. Y. Pres.: J. W. Scallan Tel.: YU 6-5940

American Society for Metals Metals Park, Novelty, Ohio Managing Dir.; A. R. Putnam Tel: ED 8-5151

American Society for Quality Control 161 W. Wisconsin Ave., Milwaukee 3, Wisc. Administrative Secy.: W. P. Youngclaus, Jr. Tel: BR 2-3347



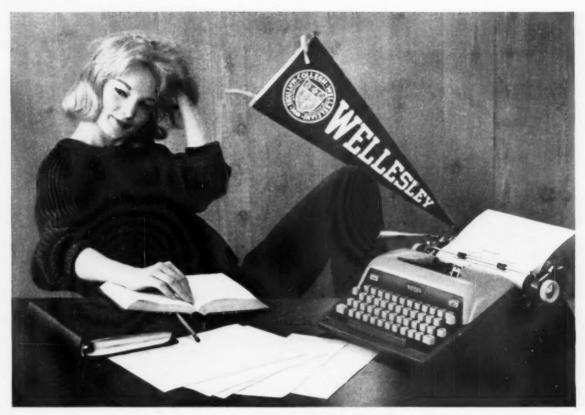
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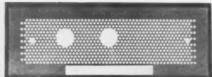
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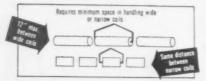


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- American Society of Lubrication Engineers 5 North Wabash Ave., Chicago 2, Ill. Exec. Secy.: Calvert L. Willey Tel: DE 2-1298
- American Society of Mechanical Engineers 29 W. 39th St., New York 18, N. Y. Secy.: 0. B. Schier, III Tel: LE 2-5883
- American Society of Tool Engineers 10700 Puritan Ave., Detroit 38, Mich. Exec. Secy.: Harry E. Conrad Tel: UN 4-7300
- American Standards Assn.
 70 E. 45th St., New York 17, N. Y.
 Managing Dir.: G. F. Hussey
 Tel: MU 3-3058
- American Supply & Machinery Manufacturers Assn., Inc. 2130 Keith Bldg., Cleveland 15, Ohio Business Mgr.: W. B. Thomas Tel: CM 1-7333
- American Tin Trade Assn., Inc. 24 State St., New York 4, N. Y. Secy.: Joan Hill
- American Welding Society, Inc. 33 W. 39th St., New York, N. Y. National Secy.: Fred L. Plummer Tel: PE 6-9220
- American Weldment Manufacturers Assn. 332 S. Michigan Ave., Chicago 4, III. Pres.: Byrne Marcellus
- American Zinc Institute, Inc. 292 Madison Ave., New York 17, N. Y. Exec. Vice Pres.: J. L. Kimberley Tel: OR 9-6020
- Anti-Friction Bearing Manufacturers Assn., Inc. 60 E. 42nd St., New York 17, N. Y. Secy.-Mgr.: M. O. Smith Tel: MU 7-5028
- Assn. of American Battery Manufacturers, Inc. 19 No. Harrison St. East Orange, N. J. Exec. Secy.: B. F. Morris Tel: OR 3-3400
- Assn. of American Railroads Transportation Bldg., Washington 6, D. C. Secy. Treas.: R. E. Keefer
- Assn. of Consulting Chemists and Chemical Engineers, 50 E. 41st St., New York 17, N. Y. Dir. of Publ.: A. B. Bowers
- Assn. of Iron and Steel Engineers 1010 Empire Bldg.. Pittsburgh 22, Pa. Managing Dir.; T. J. Ess Tel: AT 1-6323
- Assn. of Lift Truck & Portable Elevator Mfrs. One Gateway Center, Pittsburgh 22. Pa. Managing Directors: Hanson & Shea, Inc. Tel: GR 1-1580
- Assn. of Roller and Silent Chain Manufacturers 3343 Central Ave., Indianapolis 5, Ind. Exec. Secy.: A. L. Taylor Tel: WA 5-5635
- Automobile Manufacturers Assn. 320 New Center Bldg., Detroit 2, Mich. Managing Dir.: Harry A. Williams Tel: TR 2-4311
- Automotive Tool & Die Manufacturers Assn. 103 Pallister Ave., Detroit 2. Mich. Managing Dir.: Chester A. Cahn
- Brass and Bronze Ingot Institute 308 W. Washington St., Chicago 6, III. Secy.-Mgr.: Isadore Glueck Tel: CE 6-4697
- Can Manufacturers Institute, Inc. 821 15th St., N.W., Washington S, D. C. Exec. Dir.: H. Ferris White Tel: RE 7-6242
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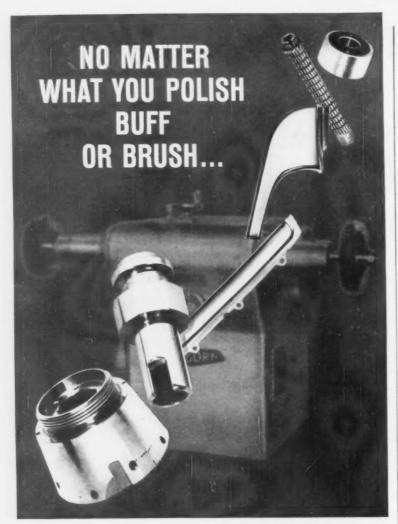
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Caster and Floor Truck Manufacturers Assn. 27 East Monroe St., Chicago 2, III, Exec. Secy.: Harry P. Dolan

Compressed Air and Gas Institute 122 E. 42nd St., New York 17, N. Y. Secy.: Frank P. Anderson

Compressed Gas Assn., Inc. 11 W. 42nd St., New York 36, N. Y. Secy. Treas.: F. R. Fetherston Tel: LA 4-4796

Concrete Reinforcing Steel Institute 38 S. Dearborn St., Chicago 3, 111, Managing Dir.: H. C. Delzell Tel: FR 2-5060

Conveyor Equipment Manufacturers Assn. No. 1 Thomas Circle. Washington 5. D. C. Exec. Vice-Pres.: R. C. Sollenberger Tel: RE 7-3584

Copper and Brass Research Assn. 420 Lexington Ave., New York 17, N. Y. Managing Dir.: T. E. Veltfort Tel: MU 6-2470

Copper & Brass Warehouse Assn., Inc. 1900 Arch St., Philadelphia 3, Pa. Exec. Secy.: Thomas A. Fernley, Jr. Tel: LO 4-3454

Copper Institute 50 Broadway, New York 4, N. Y. Secy.: R. R. Eckert Tel: WH 4-1870

Cutting Die Institute 1643 National Bank Bldg., Detroit 26, Mich. Exec. Mgr.: M. R. Liles Tel: WO 1-0730

Cutting Tool Manufacturers Assn. 1216 Penobscott Bldg., Detroit 26, Mich. Exec. Secy.: Martin J. Ewald Tel: WO 1-0080

Diesel Engine Manufacturers Assn. 2000 K St., N.W., Washington 6, D. C. Exec. Secy.: Robert L. Stanley Tel: FE 7-7474

Drop Forging Assn.
1121 Illuminating Bldg.. Cleveland 13, Ohio
Exec. Vice Pres.: Dwight M. Allgood
Tel: SU 1-6260

Ductile Iron Society
P. O. Box 858. Cleveland 22. Ohio
Exec. Secy.: James H. Lansing

Edison Electric Institute 750—3rd Ave., New York 17, N. Y. Managing Dir.: Edwin Vennard Tel: YU 6-4100

Electric Furnace Committee, Iron & Steel Div., AIME 29 W. 39th St., New York 18, N. Y. Secy.: R. W. Shearman Tel: PE 6-9220

Electric Overhead Crane Institute, Inc. One Thomas Circle, Washington S, D. C. Exec. Secy.: J. H. Peritz Tel: ME 8-3728

Electric Tool Institute 318 Henrietta St., Kalamazoo, Mich. Exec. Mgr.: L. F. Woolman

The Electrochemical Society, Inc. 1860 Broadway, New York 23, N. Y. Asst. Secy.: Robert K. Shannon Tel: CI 6-5282

Electronic Industries Assn. 1721 DeSales St., N.W., Washington 6, D. C. Exec. Vice Pres.: James D. Secrest Tel: NA 8-3902

Farm Equipment Institute 608 S. Dearborn St., Chicago S. III. Exec. Secy.: Douglas Hewitt Tel: WA 2-6511

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Formed Steel Tube Institute 635-37 Hanna Bidg., Cleveland 15, Ohio Exec. Secy.: Jehu R. Derrickson

Foundry Equipment Manufacturers Assn., Inc. One Thomas Circle, Washington 5, D. C. Exec. Secy.: C. R. Heller Tel: EX 3-0073

Foundry Facings Manufacturers Assn. 900 N. Federal Highway, P. O. Box 2875 Pompano Beach. Fia. Secy. Treas: C. E. Herington Tel: WH 1-5850

Gas Appliance Manufacturers Assn., Inc. 60 E. 42nd St., New York 17, N. Y. Managing Dir.: Harold Massey Tel: MU 2-8743

Gray Iron Founders' Society. Inc. 930 National City-E. 6th Bldg., Cleveland 14. Ohio Exec. Vice Pres.: D. H. Workman Tel: PR 1-8480

Grinding Wheel Institute 2130 Keith Bldg., Cleveland 15, Ohio Mgrs.: Hunter-Thomas Associates

Hack and Band Saws Manufacturers Assn. of America 1015 Chestnut St., Phila. 7, Pa. c/o Walter Gebhart Organization

Heat Exchange Institute 122 E. 42nd St., New York 17, N. Y. Secy.: Frank P. Anderson

Huist Manufacturers Assn., Inc. One Thomas Circle, Washington S. D. C. Exes. Secy.: J. H. Peritz Tel: ME 8-3728 Mydraulic Institute 122 E. 42nd St., New York 17, N. Y. Secy.: Frank P. Anderson

Industrial Diamond Assn. of America, Inc. Box 175, Pompton Plains, N. J. Exec. Mgr.-Sec.: Mrs. M. J. McGinnis Tel: TE 5-4920

Industrial Fasteners Institute 1517 Terminal Tower, Cleveland 13, Ohio Pres.: Frank Masterson Tel: CH 1-1482

Industrial Heating Equipment Assn., Inc. 2000 K St., N.W., Washington 6, D. C. Exec. Vice Pres.; Robert E. Fleming Tel: FE 8-6655

Industrial Safety Equipment Assn., Inc. 420 Lexington Ave., New York 17, N. Y. Secy.-Treas.: V. P. Gopcevic Tel: LE 2-8984



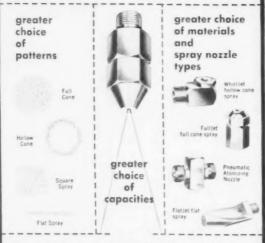
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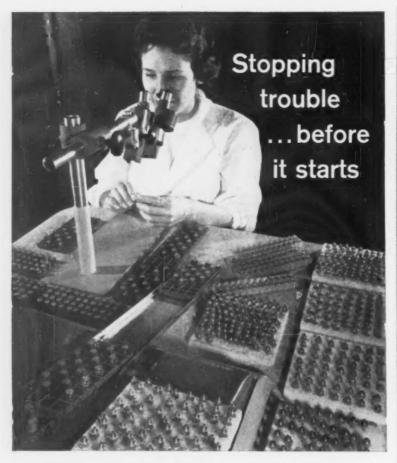
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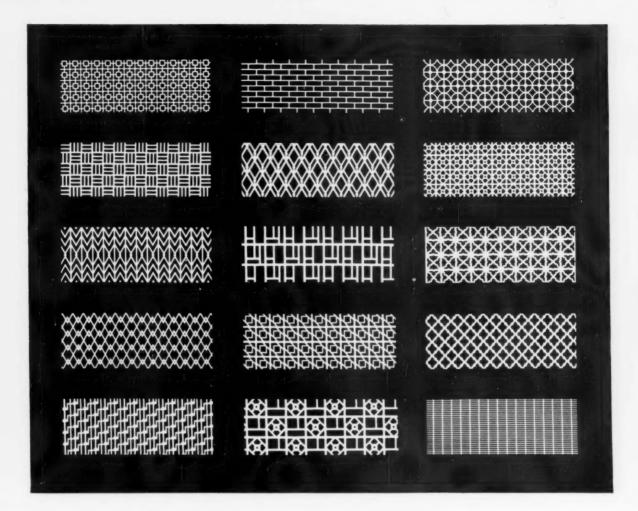
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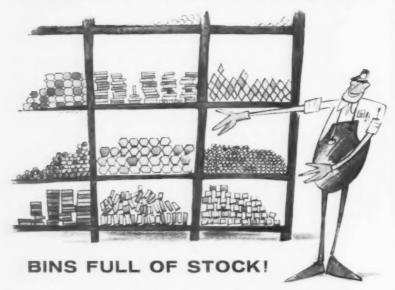
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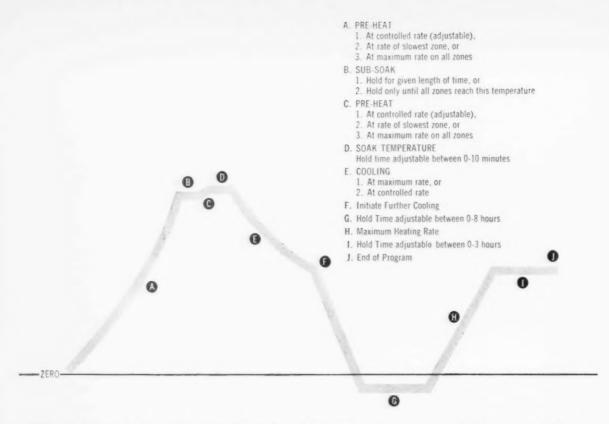
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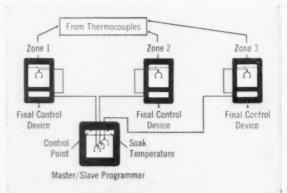
You can use this system on either batch or continuous furnaces . . . can control from either work or furnace temperatures. Heating cycles may be at a fixed rate, or at the rate determined by the slowest or fastest heating zone. As many as twenty-four zones may be automatically controlled by one master-slave programmer.

This master-slave system is available with 3-action P.A.T. control for fuel-fired furnaces; with 3-action C.A.T. control for continuous, stepless regulation of input to electric heaters or blankets; or with D.A.T. control for either electric or fuel-fired furnaces.

The system includes Speedomax* H controllers with appropriate couples and control devices for each zone; and a master-slave programmer for automatically and

continuously adjusting control-point for each zone.

If your process can benefit from precisely controlled heating and cooling, you may be surprised to learn how large a return you can get by modernizing with this quality instrumentation. For details, call your nearest L&N office, or write us at 4956 Stenton Ave., Phila. 44, Pa. Ask for Process Data Sheet 660(2).





Fioneers in Precision

New Materials and Components

Pouring System Gives Increased Casting Yield

Fully automatic, a pouring system eliminates a pouring gang and relief crew. It's specifically for the conveyorized high-production ferrous foundry operation. It adapts to either a continuous or an indexing type mold conveyor. A bull ladle

transfers metal to the holding ladle. This ladle dispenses the metal for one mold into the pouring ladle. Pouring carriage and pouring ladle move on overhead rails. (International Automation Corp.)

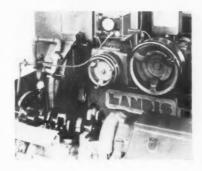
For more data circle No. 25 on postcard, p. 263



Control Gage Provides Dimensional Control

For cylindrical grinders, an airelectric gaging unit gives effective and reliable dimensional control at low cost. A power-handling relay operates directly from the air-electric switch to initiate a control signal. This signal retracts the grinding wheel. A built-in fail-safe feature provides a finish-size signal if there is a power failure. With this gaging system, there is cushioned response to work size variations. The gage installs on any plunge-cut cylindrical grinder that has hydraulically - powered wheel slide mechanism. (Federal Products Corp.)

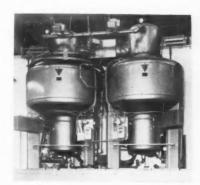
For more data circle No. 26 on postcard, p. 263



Vapor Recovery System Takes Up No Working Area

The loss of solvent through evaporation of vapors has long been a problem in the metals field. There has also been undesirable side effects which have caused finishing problems. A vapor recovery system captures solvent vapors evaporating during degreasing and cleaning operations. It does this by ducting them into a specially designed tank

with a bed of activated carbon. It returns clear, reusable solvent after a steaming and decantering process. Due to the cutting of solvent costs, installations can pay for themselves in less than one year of operation. The vapor recovery systems come in 11 different automatic and manual models. They are designed for compact installation. (Vic Mfg. Co.) For more data circle No. 27 on postcard, p. 263



Cutter Head Design Offers Long Wear Life

Featured in improved models of gear shaving machines is a new cutter head design. The gear shaving machines finish tooth surfaces on spur and helical gears. The cutter heads on the machine offer positive ball bearing preloads and maximum ease of cutter installation. It also provides freedom of rotation. With the new cutter head design, the shaving cutter nut is loosened or tightened with the outboard support

bearing in place. This avoids the possibility of bending the cutter shaft or brinelling the bearings when tightening or loosening the cutter nut with a wrench. Five preloaded ball bearings support the cutter shaft in the head. The cutter head comes in two sizes that accommodate either 9- or 12-in maximum diam cutters. (National Broach & Machine Co.)

For more data circle No. 28 on postcard, p. 263



New Equipment and Machinery



Power Press Features Fast Operation

A 70-ton power press features high-tensile semi-steel frames with tie-rods built in for longer die life. Its design provides maximum ram rigidity with less deflection. Binding and misalignment of dies during heavy blanking and drawing operations are reduced to a minimum.

This increases die life up to 50 pct. The press handles both large- and small-sized jobs quickly and easily. During fast operation, full lubrication is insured on the front and rear ways when the press is upright or inclined. (Havir Mfg. Co.)

For more data circle No. 29 on postcard, p. 263

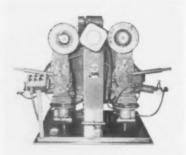


Hydrohoner Microhones Truncated Spheres

Hydraulically - operated, a machine generates the final geometric accuracy, size and surface finish. It is capable of high-production microhoning of truncated spheres (ball studs). The efficient, rugged design of the machine and the tool permits accurate, uniform stock removal on every point of the ball. A universal,

intra-flow ball adaptor provides proper seating of the abrasive cup on the workpiece. Coolant flows to the tool and abrading area during the microhoning cycle. Automatic workpiece clamping and ejecting eliminates manual operations. The head positions at different heights. (Micromatic Hone Corp.)

For more data circle No. 30 on postcard, p. 263



Machine Accomplishes Both Buffing and Coloring

Self-contained, a double-head automatic polishing and buffing machine finishes round- or oval-shaped parts. It also handles parts of rectangular shape having rounded corners. The machine gives a combination cut and color buffing operation for high luster finishing of parts. Depending on part size, shape and finish required, production rates

of from 60-150 finished parts per hour are possible. The machine features automatic control of finishing wheel pressure to suit part shape requirements. Air - line pressure, directed to cylinders controlling the wheel contact pressure, varies automatically. It does this when contact surfaces change. (Acme Mfg. Co.) For more data circle No. 31 on postcard, p. 263



Precision Turret Lathe Has Stick Controls

What are you looking for in a precision turret lathe? Here's a new design which may meet your needs. The lathe uses a single lever to start the spindle and select any speed up to 4800 rpm. During a run, the same lever can change spindle speeds or instantly stop or reverse the spindle. A push button on the top of the lever opens and closes the

collet or step chuck. Stops may be pre-set to desired speeds. The lathe's automatic indexing turret has hard-ened-steel slides. The turret slide passes over the double-tool cross slide. This makes possible adjustments in both the horizontal and vertical plane, for accurate alignment of turret head to spindle. (Rivett Lathe & Grinder, Inc.)

For more data circle No. 32 on postcard, p. 263

Impact Machine

Bench mounted, a repeating air hammer has a deep 9-in. throat clearance. Its anvil is the horn type. Operation is by foot pedal or hand lever. A feature of the machine is that valving is internal. Actuation is by contact pressure of the tool on the work. Repetition of the ham-



mer varies from 3000-6000 times per minute according to the air pressure used. The machine is useful for riveting, staking, inserting bearings and bushings, parts assembling and for working and shaping sheet metal. (Heidrich-Nourse Co.)

For more data circle No. 33 on postcard, p. 263

Surface Grinder

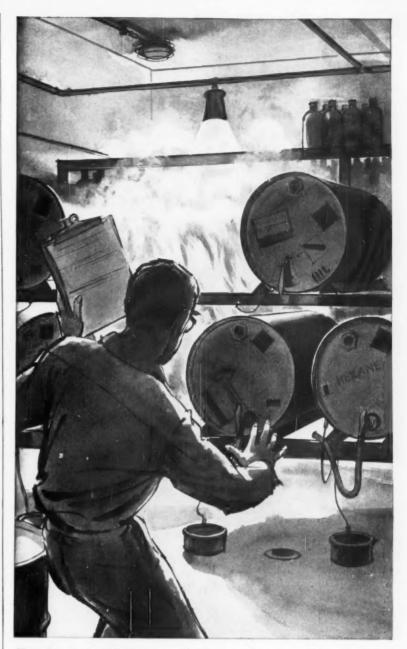
A vertical spindle surface grinder swings and grinds to the center of work up to 108-in. diam. The machine has a 96-in. diam and full magnetic chuck. The chuck holds a work load up to 10,000 lb. (The Blanchard Machine Co.)

For more data circle No. 34 on postcard, p. 263

Depth Gage

For small holes, a depth gage is useful for any hole or indentation inspection on parts where depth control is necessary. The gage is direct reading from 0-1/2 in. in 0.001-in. graduations. The contact will enter any hole down to 0.062-in. diam. The gage has a three-point support base. It may also be used without it as a hand gage. (Unigage Corp.)

For more data circle No. 35 on postcard, p. 263



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Early '61 Market Is Erratic

The first quarter outlook for steel is already clouded by some predictions of automotive cutbacks later on in February.

The market is erratic, subject to product, geographic, and other influences. Order patterns also vary between individual mills.

■ The January steel market is taking on some erratic characteristics. Wide variations by product, individual mill, and geographic area are taking some of the strength out of the expected pickup.

To further darken the outlook. February is looking questionable as prospects of automotive cutbacks grow more likely. For many months, the automotive market has been the main sustaining factor in the market. Now, unless sales of new cars pick up, cutbacks in auto production-and steel orders-seem inevitable.

Current Picture-For January, the automotive order picture shows improvement over December, probably 10 pct. But this has to be put

into perspective in view of the poor state of December business.

At the moment, February automotive orders are spotty, but overall are at the January level. But unless new car sales show a surprisingly strong increase, steel salesmen in Detroit expect downward adjustments.

Reasons Why-There are a number of reasons for the less-thanoptimistic automotive outlook. First, 1960 was a very good year and two outstanding years seldom come in succession. Second, inventories remain high. And, third, the general pessimistic outlook for the overall economy comes on top of a seasonal decline in new car interest.

On the product rundown, January gains are expected for tinplate, hot-rolled sheet, and galvanized sheet. Slight gains are looked for in cold-rolled and long terne sheet. For most other products, mills can not put together a real pattern until the month pro-

Inventories at Low Ebb-One factor that gives some strength to the market is the volume of rush

orders and order juggling. This means that inventory levels are at the bottom and any kind of an upturn in steel consuming industries will bring a sharp reaction to the steel market.

As a result of the absence of inventory cushions, fast delivery can be the factor in making a sale. Competition between the mills for shortest possible delivery time is the keenest in years.

The Long Look-As the year progresses, the steel industry will be sensitive to seasonal factors as never before in the post-war period. Inventory swings previously have dominated other market influences. Now, shipments are following consumption closely.

As 1961 gets under way, the general outlook is something like this: A small pickup in January, followed by a slight downtrend through February. Any significant upturn is not looked for before March.

By mid-year, anti-recession measures should be taking effect and it is hoped that the recession cycle should be coming to an end.

New Method of Reporting Steel Production

Starting in the Jan. 12 issue of The IRON AGE, the steel operating rates will be discontinued. Instead, a new set of tonnage figures and indexes, compiled by the American Iron & Steel Institute,

will be reported on this page. Below is a comparison of former statistics reported and the new set, which was not available for this issue.

FORMER BASIS

- 1. Total ingot output for previous week, TONS OF INGOTS
 2. Total ingot output for previous week, INDEX (1947-49 = 100)
 3. (Not currently reported)
 4. Estimated ingot output for forthcoming week, TONS
 5. Estimated ingot output for forthcoming week, INDEX
 6. Actual ingot output for one month ago, TONS OF INGOTS
 7. Actual ingot output for one month ago, INDEX
 8. (Not currently reported)
 9. (Not currently reported)
 10. (Not currently reported)
 11. Ingot output in II steelmaking districts, PCT OF CAPACITY
 12. Estimated output in steelmaking districts, PCT OF CAPACITY
 13. (Not currently reported)

NEW BASIS

- Total ingot output for previous week, TONS OF INGOTS
 Total ingot output for previous week, INDEX (1957-59 == 100)
 Comparison of past week's output with previous week, PERCENT
 (Will not be reported)
 Output, year to date, TONS OF INGOTS
 Output, year to date in previous year, TONS OF INGOTS
 Comparison of year to date output with previous year, PERCENT
 (Will not be reported)

- (Will not be reported)
 (Will not be reported)
 (more reported)
 (Will not be reported)
 (Will not be reported)
 (Will not be reported)
 (Will not be reported)

Foundries Await Turning Point

The foundry trade isn't moving forward or backward just now. But one authority says it is waiting to make a comeback.

The comeback for foundrymen will follow other industries.

 The foundry trade is still gyrating from one month to another. But a leading authority says it will make a comeback shortly after other industries.

New order figures of the Foundry Equipment Manufacturers Assn. (see chart) indicate that while the industry activity is now substantially below other metalworking areas, it hasn't dropped to the levels of the 1958 recession.

Einar Borsch, vice president of the association and the National Metal Abrasives Co., Cleveland, says, "We feel that there is still a good backlog of demand for modernization-type equipment. This will be forthcoming as soon as the turning point is reached.

Faces Variations—"The foundry industry is subject to stronger variations than other groups and it usually comes in waves because foundrymen all get on the bandwagon at once."

Mr. Borsch also notes: "The slowdown in 1958 for our industry came after a two year surge of expansion. The difference this time is that the present drop-off came right after a wave of modernization was well under way. It was interrupted when the economy faltered in the spring.

"But there is still a great need for modernization and we feel equipment ordering will be resumed as soon as that turning point is reached."

Psychological Patterns — Mr. Borsch claims the industry's buying patterns are psychological. He says the optimistic outlook at the beginning of 1960 pushed ordering to one of its highest points in recent years. When the economy started to slip, foundrymen hid.

"Our foundry show in May didn't really stimulate business either. But the trend in the first half of 1960 was definitely firm, and the need still exists."

What Categories? — Categories covered by the association statistics and reflected in the chart include equipment for blast cleaning and tumbling, dust and fume control, molding machines, material handling and processing, furnaces and acessories, and general products.

Three of the groups are well above the average and three are well below the average.

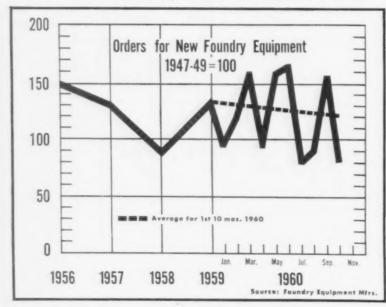
Design Ideas Might Be Money Savers

Winners in the design contest of the Gray Iron Founders Society, Cleveland, this year, indicate some strong money saving possibilities.

In one instance, a gas burner manifold for an oil refinery was made of a heavy bent pipe with welded outlets. In use, it has a tendency to distort. The part was designed using a ductile iron casting which shaved the total cost from \$36.46 to \$8.24.

Material cost, dropping from \$27.08 to \$6.40, was the biggest savings according to the contest winner, William E. Hudson, National Airoil Burner Co.

Orders Down, But Lead 1958



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Engineered Ultrasonics simplifies tough cleaning jobs for Lycoming

This 2-KW Sonogen* ultrasonic-cleaning installation was designed in collaboration with the Lycoming Division of Avco to handle the toughest jobs in the shop. Planned originally for close-tolerance gas-turbine parts whose complex geometry and heavy scale handicapped old-fashioned cleaning methods, it now works three shifts on air diffusers (photo) and other difficult parts pre-selected for efficient Sonogen* cleaning. Repeated cycling in conventional cleaning baths failed to remove all scale, oxide and soil; now the fast, efficient scrubbing action of Sonogen* cleans every surface thoroughly without re-cycling / Your problem may be different from Lycoming's, but the solution is probably the same — a Sonogen* ultrasonic-cleaning system engineered for your needs. Write today, giving us full details.

Since 1946 The Respected Name in Ultrasonics

Table 1946 The Respected Name in Ultrasonics

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THE IRON AGE, January 5, 1961

Warehouse Prices Slide in Midwest

Steel service centers in the Midwest have cut prices again by \$2 to \$3 a ton.

And they have returned to the order-quantity pricing system, doing away with item extras.

• Midwest buyers of warehouse steel got a year-end bonus from steel service centers in a revised pricing system. The bonus is in the form of lower costs for average buyers and simplification of figuring extras.

Warehouses there have dropped the item-order quantity pricing system installed in mid-1959. And they are returning to the orderquantity system in effect before.

For the buyer who begins combining small item quantities into large orders, savings can be as much as \$2-3 per ton, warehousemen believe.

Price Cut Spreads—Price trimming was still spreading at the end of last week. Metalworking centers already under the new system include: Chicago, Milwaukee, Cleveland, Indianapolis, Cincinnati, Detroit, St. Louis, Louisville, and Columbus. And the price structure is under pressure in Minneapolis-St. Paul, and Rockford, Ill.

Warehouse officials say they have no plans to change the price structure in other areas. But some concede that a break at Cleveland generally means changes along the East Coast. A break in the eastern market would probably start in Pittsburgh.

What's Out — The abandoned system was an attempt by service

centers to adapt pricing on small orders to actual handling costs.

For example, Chicago users paid an item extra of \$2.50 per 100 lb for items under 400 lb in a total order of 20,000 lb. This extra has been eliminated.

Discounts will now be figured only on the basis of the total size of the order, regardless of the number of items involved.

Other Changes — At the same time as they dropped item extras, warehouses raised some order quantity prices. For this reason, customers buying only a small quantity of a single item could end up paying slightly more for it. But studies have shown that most service center customers order a variation of the same time.

Price Date Change — Beginning with this issue, prices will be effective as of Mondays—rather than Tuesdays — unless otherwise indicated. This change is caused by a 148-pct increase in circulation of The IRON AGE during the past 10 years.—Ed.

PURCHASING AGENT'S CHECKLIST

Executives' Forecast: Profit pinch will be major problem this year,

P. 121

General Business Outlook: Timing the recovery will be important.

P. 89

Steel Consumption: Survey forecasts use of seven major steel products in first half '61. P. 207 riety of types of steel to be combined in a single order.

The new base quantity price at Chicago warehouses for 100 lb of hot-rolled sheets, for example, was increased from \$8.72 to \$9.37, up 65¢ per 100 lb. Balanced against this is the elimination of the itemquantity extras which ranged from 25¢ to \$3.00 or more per 100 lb, depending on size of the item and the total order.

Sheet and Strip-No significant change from December is expected in January. Automotive still controls the market. And along the East Coast automakers are cutting back on orders, while other users are ordering only enough to fill inventory holes. Some Pittsburgh producers say some January tonnage was shifted back to December. This helped December but does nothing for January. An auto stamper admits such a shift because it underestimated production schedules. But it plans no larger order this month than last-and even warns of sharp cutbacks planned for February. There are similar reports from Detroit where January orders are little better than December, and February's are spotty. Chicago mills say automotive sheet buying is off to a slow start, and orders are below expected levels.

Bars—Mills have little more than hope to bolster the bar market. Pittsburgh mills hope January will be a little better than November, the best month of the second half—but they're still waiting for orders. A Detroit salesmanager for a Midwest producer is hopeful that January will show an improvement over December. He says the company is hearing from more customers—but for hurry-up orders. And reports from Chicago say hotrolled bars are the worst selling product.

Pipe and Tubing—Oil producers say they are about ready to start buying a little seamless. But they don't plan a buying surge. They indicate ordering will be on a day-to-day basis, drawing from down-river stocks to a large extent.

COMPARISON OF PRICES

1960

(Effective Dec. 30, 1960) Nov. 29

1960

Steel prices on this page are the average of various f.o.b. quotations major producing areas: Pittsburgh, Chicago, Gary, Cleveland, of major p Youngstown.

Price changes from previous week are shown by an asterisk (*).

	Dec. 30 1960	Dec. 27 1968	Nov. 29 1960	Dec. 29 1959
Flat-Rolled Steel: (per pound) Hot-rolled sheets Cold-rolled sheets (10 gm.) Hot-rolled strip Cold-rolled strip Plate Plates, wrought iron Stainl's C-R strip (No. 302)	5.10¢ 6.275 6.875 5.10 7.425 5.30 14.10 52.00	5.10¢ 6.275 6.875 5.10 7.425 5.30 14.10 52.00	5.10¢ 6.275 6.875 5.10 7.425 5.30 14.10 52.00	5.10¢ 6.275 6.875 5.10 7.425 5.30 13.55 52.00
Tin and Terneplate: (per base box Tin plates (1.50 lb.) cokes Tin plates, electro (0.50 lb.) Special coated mfg. ternes		\$10.65 9.35 9.90	\$10.65 9.35 9.90	\$10.65 9.35 9.90
Bars and Shapes: (per pound) Merchants bar Cold finished bar Alloy bar Structural shapes Stainless bars (No. 302) Wrought iron bars	5.675¢ 7.65 6.725 5.50 46.75 14.90	5.675¢ 7.65 6.725 5.50 46.75 14.90	5.675¢ 7.65 6.725 5.50 46.75 14.90	5.675¢ 7.65 6.725 5.50 45.00 14.90
Wires: (per pound) Bright wire	8.00¢	8.00¢	8.00€	8.00¢
Rails: (per 10 lb.) Heavy rails Light rails	\$5.75 6.725	\$5.75 6.725	\$5.75 6.725	\$5.75 6.725
Semifinished Steel: (per net ton) Rerolling billets Slabs, rerolling Forging billets Alloys, blooms, billets, slabs	99.50	\$80.00 80.00 99.50 119.00	\$80.00 80.00 99.50 119.00	\$80.00 80.00 99.50 119.00
Wire Rods and Skelp: (per pound Wire rods Skelp		6.40¢ 5.05	6.40¢ 5.05	6.40¢ 5.05
Finished Steel Composite: (per per Base price		6.196¢	6.196∉	6.196

Finished Steel Composite

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.

Pig Iron Composite

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Phila-delphia, Buffalo and Birmingham.

Pig Iron: (per gross ton)
Foundry, del'd Phila.
Foundry, South Cin'ti
Foundry, Birmingham
Foundry, Chicago
Basic, del'd Philadelphia
Basic, Valley furnace
Malleable, Chicago
Malleable, Chicago
Malleable, Valley
Ferromanganese, 74-76 pet Mn,
cents per lb.‡ \$70.11 \$70.11 \$70.11 \$70.57 71.92 62.50 66.50 69.61 73.87 62.50 66.50 70.07 69,61 69.61 66.00 66.50 66.50 12.25 866.32 \$66.32 \$66.41 Scrap: (per gross ton)
No. 1 steel, Pittsburgh
No. 1 steel, Phila. area
No. 1 steel, Chicago
No. 1 bundles, Detroit
Low phos., Youngstown
No. 1 mach'y cast, Pittsburgh,
No. 1 mach'y cast, Phila.
No. 1 mach'y cast, Chicago \$42.50 41.50 39.50 37.50 48.50 55.50 54.50 \$29.50* 34.50* 29.50* 27.50* 33.50* 44.50 47.50 44.50* 33.50 25.50 21.50 28.50 45.50 47.50 41.50 33.50 26.50 23.50 29.50 44.50 47.50 42.5060.50 | Steel Scrap Composite: (per gross ton) | No. 1 hvy. melting scrap \$31.17* | No. 2 bundles 21.50* \$29.17 \$28.50 18.50 \$41.17 27.83
 Coke, Connellaville:
 (per net ton at oven)

 Furnace coke, prompt.
 \$14.75-15.50 14.75-15.50 14.75-15.50 14.75-15.50

 Foundry coke, prompt.
 \$18.50 18.50 18.50 18.50
 30.00 30.06 101.50 12.50 11.00 26.00 74.00 36.00 29.50 33.00 98.50 12.50 $13.00 \\ 11.80$ 11.80 28.10 74.00 36.00 29.50 Lead, St. Louis
Aluminum, ingot
Nickel, electrolytic
Magnesium, ingot
Antimony, Laredo, Tex.
† Tentative. ‡ Average. * Revised. $\frac{26.00}{74.00}$

1960

Steel Scrap Composite

Average of No. 1 heavy melting steel scrap and No. 2 bundles delivered to consumers at Pittsburgh, Philadelphia and Chicago.

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Year Ends With Prices Rising

The scrap market made its biggest gain since last spring.

Industrial and auto lists showed prices up. Export demand and bargain levels were also factors.

■ The scrap market came to a close in 1960 with its sharpest gains since spring.

Most prices in key areas climbed on industrial and automotive lists. Export demand in port areas was also a major factor. Many scrapmen say consumers were grabbing at bargain prices while there was still a chance.

The biggest price gains were in Chicago and Pittsburgh. According to one Pittsburgh mill, however, industrial prices were based 75 pct on broker speculation. The mill says there has been nothing in the way of steel orders or mill commitments for scrap to warrant extreme bullishness.

Another mill in Pittsburgh notes there must have been strong consumer support to bring the sharp and general increase in the industrial prices.

The IRON AGE composite price for No. 1 heavy melting scrap climbed from last week's \$29.17 to \$31.17. The composite price of this grade for 1960 is \$32.95. The IRON AGE composite price for 1959 was \$40.49.

Pittsburgh—Prices moved sharply upward this week as both industrial and dealer grades showed new strength. Local automotive bundles sold for \$5 over the price paid one month ago. A mill on the fringe of the district came out with a price

to the dealer of \$30 for No. 1 heavy melting. This is \$3 more than the same mill paid last month. Another mill, in a nearby district, is aggressively buying openhearth scrap. Thus far, the market advance is mostly a correction from price levels that were too low even for the limited buying of recent weeks.

Chicago—The market moved up sharply on new factory lists. Expected gains of \$2 were surpassed when one factory list advanced \$5 to \$6 over last month's prices. While some of the gains are discounted as representing export orders, later lists still show far stronger gains than scrap buyers had expected.

Philadelphia—A lack of material because of cold weather and export shipments has forced several key prices upward. Generally, scrapmen here look for the market to firm in January. However, one large pipe foundry indicates it will not buy in January. This is the first month in a long time that this foundry has been out of the market. What effect this will have is still a big question.

New York — The inclement weather of recent weeks has created a situation of premium prices for scrap at the docks. Other than this, there is no new activity.

Detroit — The market continues to climb as domestic mills and exporters compete for the area's attractively-priced scrap. January's industrial list buy was split about 50-50 by domestic and export customers.

Cleveland—The market is up \$3 in the Valley based on a sizable mill order for premium electric

furnace grades at \$35. This came in the wake of a jump of about \$5 in price for auto production lists over a month ago due to export demand. The next week or two will decide whether or not this is a real comeback.

Cincinnati—Area lists jumped \$4 or better and will probably be shipped out of the district. Only small orders are in prospect from a local mill, but a price increase is expected. Considerable tonnage will move to upriver markets.

St. Louis — Further gains of \$1 and \$2 for some railroad items injected more strength into the market. Supplies remain tight. Mill buying at present is near a stand-still

Birmingham—There was no new scrap buying in the district this week. The export market, however, continues active and strong. A stronger domestic market is anticipated now that the first quarter is here.

Buffalo—There is no change in the market and prices remain the same. As yet, dealers have received no orders for January.

Boston—A gain in export activity resulted in several price jumps this week. The domestic market remains at a standstill.

West Coast—The export market is strong. The flow of scrap into dealer's yards is very slow. Some dealers say if the mills start buying there won't be enough scrap to go around.

Houston—Broker prices remain unchanged. The district mill plans to make a few purchases of selected items from local dealers. It has no plans to buy through brokers.

Price Date Change — Beginning with this issue, prices will be effective as of Mondays—rather than Tuesdays — unless otherwise indicated. This change is caused by a 148-pct increase in circulation of The IRON AGE during the past 10 years.—Ed.

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- NEWARK
- NEW YORK
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- ROCHESTER
- SAN FRANCISCO
- SYRACUSE
- TOLEDO
- WATERBURY





- Beaver Falls, Pa. -

Consult telephone directory, in cities listed, or

Pittsburgh

No. 1 hvy. melting \$29,00 to \$30.00
No. 2 hvy. melting 24.00 to 25.00
No. 1 dealer bundles 30,00 to 31.00
No. 1 factory bundles 36,00 to 37.00
No. 2 bundles 23.00 to 24.00
No. 1 busheling 29.00 to 30.00
Machine shop turn 13,00 to 14,00
Shoveling turnings 18.00 to 19.00
Cast iron borings 17.00 to 18.00
Low phos. punch'gs plate 35,00 to 36,00
Heavy turnings 25,00 to 26.00
No. 1 RR hvy. melting 34.00 to 35.00
Scrap rails, random lgth 40.00 to 41.00
Rails 2 ft. and under 45.00 to 46.00
RR Specialties 38.00 to 39.00
No. 1 machinery cast 44.00 to 45.00
Cupola cast 35.00 to 36.00
Heavy breakable cast 33.00 to 34.00
Stainless
18-8 bundles and solids. 175.00 to 180.00
18-8 turnings 95.00 to 100.00
430 bundles and solids., 85.00 to 90.00
410 turnings 60.00 to 65.00

Chicago

No. 1 hvy. melting	29.00	to	\$30.00
No. 2 hvy, melting	27,00	10	28.00
No. 1 dealer bundles	30.00	10	31.00
No. 1 factory bundles	35,00		
No. 2 bundles	20.00		
No. 1 busheling	29.00		
Machine shop turn	15.00		
Mixed bor, and turn	17.00		
Shoveling turnings	17,00	10	18.00
Cast iron borings	17.00		18.00
Low phos, forge crops	38.00		
Low phos. punch'gs plate,	00.00	LU	03,00
in and heavier	34.00	**	35.00
Low phos. 2 ft. and under.	34.00		35.00
No. 1 RR hvy, melting	33,00		34.00
Serap rails, random lgth	41.00		
Rerolling rails	53.00		55.00
Rails 2 ft. and under			35.00
Angles and splice bars	46.00		47.00
RR steel car axles	41.00		42.00
RR couplers and knuckles.	54.00		55,00
No. 1 machinery cast.	38.00		39.00
Cunola cast	44.00		45.00
Cupola east.	39.00		40.00
Cast iron wheel	30.00		
Malleable	43.00		44.00
Stove plate	34.00		35,00
Steel car wheels	38.00	to	39.00
18-8 bundles and solids. 1	75.00	to	180.00
18-8 turnings	95.00	1.0	100,00
430 bundles and solids .	90,00	to	95.00
430 turnings	55,00	10	60.00

Philadelphia Area

. modelbuid Mied		
No. 1 hvy melting	34.00 to	\$35,00
- nvy melling	20 00 20	2.1 0.0
. The I dealer bundles	25 000 200	36.00
aso. 2 Dundles	20.00 to	21.00
No. 1 busheling	25.00 **	36.06
Machine shop turn	12.00 to	
Mixed bor, short turn	14.00 to	15.00
Cast iron borings	14.00 to	
Shoveling turnings	18.00 to	19.00
Clean cast, chem. borings.	23,00 to	24.00
Low phos. 5 ft and under	35.00 to	36,00
Low phos. 2 ft punch'gs	38.00 to	
Elec. furnace bundles	35,00 to	36.00
Heavy turnings	25.00 to	26.00
RR specialties	37,00 to	
Malis, 18 in, and under	47.00 to	49.00
Cupola cast.	36,00 to	27.00
Heavy breakable cast	37 00 to	28 00
Cast fron car wheels	37 00 to	28 00
maileable	45 00 to	46 00
No. 1 machinery cast	47.00 to	48.00

Cincinnati

Brokers buying prices per gross ton	on	cars:
200. 1 HVy. melting \$22.50	108	24 50
No. 2 hvy. melting 20,50	to	21.50
No. 1 dealer bundles 24.50	to	25.50
	10	17.00
Machine shop turn 8.00	to	9.00
Shoveling turnings 10.00	to	11.00
Cast iron borings 10.00		11.00
Low phos. 18 in. and under 31.00		32.00
Rails, random length 33.00	to	34.00
Rails, 18 in. and under 42.00		43.00
No. 1 cupola cast 34,00	10	35.00
Heavy breakable cast 28.00	to	29.00
Drop broken cast 41.00	10	42.00

Youngstown

No. 1 hvy. melting			- 8	29.00	to	\$30.00
No. 2 hvy, melting .				21.00	to	22.00
No. 1 dealer bundles				29.00	to	30.00
No. 2 bundles				20,00	10	21.00
Machine shop turn.				13.00	to	14.00
Shoveling turnings				16.00	to	17.00
Low phos. plate				33.00	to	34.00

Iron and Steel Scrap

Going prices of Iron and steel scrap as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Cleveland

OIC TCIMING			
No. 1 hvy. melting	\$25.50	to	\$26.50
No. 2 hyv. melting	17,00	to	18.00
No. 1 dealer bundles	25.50	to	26.50
No. 1 factory bundles	32.50	to	33.50
No. 2 bundles			
No. 1 busheling	25.50	to	
Machine shop turn	10,00	to	11.00
Mixed bor, and turn,	13.00		
	13.00		
Cast iron borings			
Cut structural & plates.	10.00	LU	14.00
	35.00	60	36.00
2 ft. & under	26.50		
Low phos. punch'gs plate.	25.50	100	
Drop forge flashings			
Foundry steel, 2 ft. & under	25.00		
No. 1 RR hvy, melting	29.50		
Rails 2 ft. and under	45.00		
Rails 18 in. and under	46.00		
Steel axle turnings	21.00		
Railroad cast	44.00		
No. 1 machinery cast	44.00	to	
Stove plate	37.00	to	38.00
Malleable	44.00	to	45.00
Stainless			
18-8 bundles	65.00	to	170.00
18-8 turnings	60.00	to	70.00
430 bundles	70.00	to	75.00
and demand and an arrange			2,00

Buffalo

No. 1 hvy, melting	\$23.00 to	\$24.00
No. 2 hvy. melting	20.00 to	21.00
No. 1 busheling	23.00 to	24.00
No. 1 dealer bundles	23.00 to	24.00
No. 2 bundles	17.00 to	18.00
Machine shop turn	9.00 to	10.00
Mixed bor, and turn.	10.00 to	11.00
Shoveling turnings	13.00 to	14.00
Cast iron borings	11.00 to	12.00
Low phos. plate	31.00 to	32.00
Structurals and plate,		
2 ft. and under	33.00 to	
Scrap rails, random lgth	32.00 to	33.00
Rails 2 ft. and under	42.00 to	43.00
No. 1 machinery cast	42.00 to	43.00
No 1 cunola cast	26.00 to	37.00

St. Louis

No. 1 hvy. melting			\$28.00
No. 2 hvy. melting	25.00	to	26.00
Foundry steel, 2 ft.	27.00		28.00
No. 1 dealer bundles	28.00	to	29.00
No. 2 bundles	18.00	to	19.00
Machine shop turn	7.00		8.00
Shoveling turnings	9.00	to	10.00
Cast iron borings	16.00		17.00
No. 1 RR hvy. melting	30,00		31.00
Rails, random lengths	36.00		37.00
Rails, 18 in. and under	38.00		
RR specialties	36.00		
Cupola cast			39.00
Heavy breakable cast	31.00		32.00
Stove plate	33.00		
Cove plate			
Cast iron car wheels	33.00		
Rerolling rails	47.00	to	48.00
Unstripped motor blocks	33.00	to	34.00

Birmingham

No. 1 hvy. melting		
No. 2 hvy. melting	24.00 to	
No. 1 dealer bundles	29,00 to	30.00
No. 2 bundles	19.00 to	20.00
No. 1 busheling	31,00 to	
Machine shop turn	16.00 to	
Shoveling turnings	18,00 to	
Cast iron borings	9.00 to	
Electric furnace bundles	32.00 to	
Elec. furnace, 3 ft. & under	32,00 to	
Bar crops and plate	37.00 to	
Structural and plate, 2 ft.	36.00 to	
No. 1 RR hvy, melting	32.00 to	
Scrap rail, random lgth	37.00 t	
Rails, 18 in. and under	44.00 to	
Angles and splice bars	36.00 to	
No. 1 cupola cast	44.00 to	
Stove plate	44.00 to	
Cast iron car wheels	33.00 to	
Unstripped motor blocks		
t histripped motor blocks	32.00 t	0 33.00

New York

Brokers buying prices per gress ten	on cars:
No. 1 hvy. melting\$27.00 t	0 \$28.00
No. 2 hvy. melting 20.00 to	0 21.00
No. 2 dealer bundles 15.00 to	
Machine shop turnings 2.00 t	0 3.00
Mixed bor, and turn 3.00 to	0 4.00
	0 6.00
Clean cast, chem. borings 17.00 t	
No. 1 machinery cast 36.00 t	
Mixed yard cast 32.00 t	
Heavy breakable cast 30.00 t	0 31.00
Stainless	
18-8 prepared solids160.00 t	0 165.00
18-8 turnings 80.00 t	0 85.00
430 prepared solids 70.00 t	0 75.00
430 turnings 20.00 t	0 25.00

Detroit

Delloll	
Brokers buying prices per gross ton on ca	ars:
No. 1 hvy. melting\$23,00 to \$24	.00
No. 2 hvy. melting 20.00 to 21	.00
	3.00
No. 2 bundles 20.00 to 21	00.
	00.
	00.1
Machine shop turn 8.00 to 9	00.1
	00.5
Shoveling turnings 11.00 to 12	00.5
Cast iron borings 11.00 to 12	00.5
Heavy breakable cast 25.00 to 26	00.
	00.5
Automotive cast 36,00 to 37	00.
Stainless	
18-8 bundles and solids 145.00 to 150	00.1
18-8 turnings 45.00 to 50	00.1
430 hundles and solids 50 00 to 55	

BOSTOR		
Brokers buying prices per gro	ss ton	on cars:
No. 1 hvy. melting	23.00	to \$24.00
No. 2 hvy. melting	18.00	to 19.00
No. 1 dealer bundles	23.00	to 24.00
No. 2 bundles	12.00	to 13.00
No. 1 busheling	23.00	to 24.00
Machine shop turn.		
Shoveling turnings		
Clean cast. chem. borings	11.00	to 12.00
No. 1 machinery cast	37.00	to 38.00
Mixed cupola cast	29.00	to 30.00
Heavy breakable cast		

San Francisco

No. 1 hvy. melting	\$32.00
No. 2 hvy. melting	29.00
No. 1 dealer bundles \$27.00 to	28.00
No. 2 bundles	18.00
Machine shop turn	14.00
Cast iron borings	14.00
No. 1 cupola cast 46.00 to	48.00

Los Angeles

No. 1 hvy. melting \$2	29.00	to	\$30.00
No. 2 hvy. melting	26.00	of	27.00
No. 1 dealer bundles	24.00		
No. 2 bundles			17.00
Machine shop turn			12.00
Shoveling turnings			13.00
Cast iron borings			13.00
under (foundry)			42.00
No. 1 cupola cast	18.00	to	39.00
Contain			

No. 1 hvy. melting No. 2 hvy. melting No. 2 bundles No. 1 cupola cast. Mixed yard cast.

Hamilton, Ont	
Brokers buying prices per net to	n on cars:
No. 1 hvy. melting	. \$24.00
No. 2 hvy, melting cut 3	
ft. and under	. 20.50
No. 1 dealer bundles	24.00
No. 2 bundles	. 17.00
Mixed steel scrap	16.00
Bush., new fact, prep'd	
Bush., new fact, unprep'd	. 18.00
Machine shop turn	8.00
Short steel turn	. 12.00
Mixed bor. and turn	. 12.00
Cast scrap	

Houston				
Brokers buying prices	per	gross.	ton	on cars:
No. 1 hvy. melting				\$32.00
No. 2 hvy. melting				
No. 2 bundles				
Machine shop turn.				8.00
Shoveling turnings .				11.00
Cut structural plate				
2 ft. & under				
Unstripped motor b				
Cupola cast				
Heavy breakable ca	St	21	.00	to 26.00





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New World Markets Give Nickel a Lift

Gains in nickel consumption in Europe compensate for lagging markets in the steel industry.

As a result of the world market shift Europe now consumes more nickel than the U. S.

 For the last few months nickel producers have been looking much happier than apparent market conditions would indicate.

The steel industry is by far the largest user of nickel. And with American steel production sagging, the domestic nickel market isn't at its best.

World Market Shifts—But there was a major geographic shift in the pattern of world nickel consumption in 1960.

The result: "Consumption of nickel by the Free World will set a new high annual record in 1960, exceeding 500 million lb, an increase of over 15 pct above that of 1959," says International Nickel Co. chairman Henry S. Wingate.

The shift: Europe is now consuming more nickel than the U. S.—43.5 pct of total world consumption to 43 pct for the U. S.

"A substantial increase in the use of nickel in Europe was the main factor to the Free World's record breaking consumption," reported Inco's chief executive. He added: "Differing from the pattern of past years, total consumption in North America, which for many years has been the world's largest market for nickel, was below that of the balance of the Free World."

The Big Markets-All markets

for nickel advanced during the year. The greatest gains: Use of nickel in stainless steels, and in electroplating, primarily for the auto industry.

For 1961, the outlook continues bright. For one thing, there will likely be continued plentiful supply. "Nickel producers of the Free World (Inco is by far the largest) continued to increase their production capacities in 1960," says Mr. Wingate. "And it is estimated that before the end of 1961, the total nickel production capacity of the Free World, exclusive of Cuban sources, will approach 500 million lb annually."

This is likely to be needed before long. Mr. Wingate concludes, "In spite of the slowness in industrial pickup in the United States, Free World consumption of nickel will again be at a very high level in 1961. The economies and technological advantages which nickel can provide should result in the Free World nickel consumption reaching new peaks in the years ahead."

Titanium

Things are starting to look up for titanium. Mill product shipments in 1960 were about 10 million lb, almost 50 pct better than 1959, says T. W. Lippert, director of marketing, Titanium Metals Corp. of America.

In 1956, shipments were about 10.1 million lb; in 1957, 11.3 million lb. Then, cutbacks in defense buying sent titanium downward until, by the end of the record year 1957, production was at the rate of only 4 pet of capacity.

What is causing the renewed

surge? Better price picture for one, says Mr. Lippert. TMCA composite price index, based on commercially pure sheet and strip, and alloy bar and billet, now stands at \$6.97 per lb. In 1956 it was \$11.97 per lb.

Copper

U. S. brass mills are gearing up for the "hard sell" in 1961, says T. E. Veltfort, managing director, Copper and Brass Research Assn.

The reason: Their shipments dropped about 16 pct in 1960.

"This has been due in great part," says Mr. Veltfort, "to the liquidation of inventories by users, and by a disappointing showing in such brass mill product consuming fields as residential building, electrical appliances, and industrial components."

Tin prices: Dec. 20—101.375; Dec. 21—101.25; Dec. 22— 101.25; Dec. 23—101.125; Dec. 27—101.00; Dec. 28—100.875; Dec. 29—100.75; Dec. 30—100.625*. * Estimate.

Price Date Change — Beginning with this issue, prices will be effective as of Mondays—rather than Tuesdays — unless otherwise indicated. This change is caused by a 148-pct increase in circulation of The IRON AGE during the past 10 years.—Ed.

Primary Prices

(cents per lb)	price	last price	change
Aluminum Inget	26.00	24.70	12/17/69
Copper (E)	30.00	33.00	10/11/60
Copper (CS)	30.00	31.00	10/13/60
Copper (L)	30.00	33.00	10/13/60
Lead, St. L.	10.86	11.80	12/13/60
Lead, N. Y	11.00	12.00	12/13/60
Magnesium Inget	36.00	34.50	8/13/58
Magnesium pig	35.25	33.75	8/13/58
Nickel	74.00	64.50	12/8/58
Titanium sponge	158-160	162-182	8/1/59
Zinc, E. St. L.	12,50	13.00	12/13/60
Zinc, N. Y.	13.00	13.50	12/13/80

ALUMINUM: 99% Inget COPPER: (E)

— electrolytic, (CS) — custem smelters,
electrolytic. (L) — lake. LEAD: common
grade. MAGNESIUM: 99.8% pig Velasco,
Tex. NICKEL: Pert Colberne, Canada.
ZINC: prime western. Other primary
prices, pg. 281.

NONFERROUS PRICES

MILL PRODUCTS

(Cents per lb unless otherwise noted)

ALUMINUM

(Base 30,000 lb, f.o.b. customer's plant)

Flat Sheet (Mill Finish and Plate)

("F" temper except 6061-0)

Alloy	.030-	048-	.077-	136- 250
1100, 3003	48 4	47 4	46 4	45.4
5052	55 8	53 0	50 8	49.2
6061-0	53 0	50 3	48 4	47.0

Extruded Solid Shapes

Factor	6063 T-5	6062 T-6
1-17	45 3-46 8	54 0-61 8
18-32	45 8-47 5	58 6-81 5
33-38	49 5-52 2	85 1-96 6
39-44	59 8-63 6	102 0-124 0

Screw Machine Stock-2011-T-3

Size"	Saz Nie	$^{11}_{-32}$ $^{-23}_{-32}$	*4-11/16	13/12-13/2
Price	60 0	59 2	57.7	55.3

Roofing Sheet, Corrugated

(Per sheet, 26" wide base, 16,000 lb)

Length"→	72	96	120	144	
.019 gage	\$1.506	\$2 013	\$2.515	\$3.017	

(F.o.b. shipping pt., carload frt. allowed) Sheet and Plate

Type 1 Gage	.250 e→ 3.00	250- 2.00	.188	.081	.032
AZ31B Stand, Grade	(67.9	69.0	77.9	103.1
AZ31B Spec		93.3	96.9	108.7	171.3
Tread Plate		70.6	71.7		
Tooling Plate	73.0				

Extruded Shapes

factor→	6-8	12-14	24-26	36-38
Comm. Grade. (AZ31C)	65.3	65.3	66.1	71.5
Spec, Grade (AZ31B)	84.6	85.7	90.6	104.2

Alloy Ingot

AZ91B (Die Casting)		37.25	(delivered)
AZ63A, AZ92A, AZ91C	(Sand Casting)	40.75	(Velasco, Tex.)

NICKEL, MONEL, INCONEL

(Base prices f.o.b. mill)		
"A" Nickel	Monel	Incone
Sheet, CR 138	120	138
Strip, CR 124	108	138
Rod, bar, HR., 107	89	109
Angles, HR 107	89	109
Plates, HR 130	110	126
Seamless tube . 157	129	200
Shot blocks	87	

COPPER, BRASS, BRONZE

(Freight included in 5000 lbs)

	Sheet	Wire	Rod	Tube
Copper	55.13		52.36	56.32
Brass, Yellow	49.27	49.56	49 21	53.43
Brass, Low	51.75	52.04	51.69	55.81
Brass, Red	52.62	52.91	52.56	56.68
Brass, Naval	54.08	60.39	47.89	58.24
Muntz Metal	52.14		47 45	
Comm. Bz.	54.03	54.32	53.97	57.84
Mang. Bz.	57.82		51.42	
Phos. Bz. 5%	75.70	75.70	76.20	77.63

TITANIUM

(Base Prices f.o.b. mill)

(Base Prices f.o.b. mill)

Sheet and strip, commercially pure, \$6.75\$13.00; alloy, \$13.40-\$17.00. Plate, HR, commercially pure, \$5.25-\$8.00; alloy, \$8.00-\$10.00.

Wire, rolled and/or drawn, commercially pure,
\$5.55-\$6.05; alloy, \$5.55-\$9.00; bar, HR or
forged, commercially pure,
\$4.00-\$4.55; billets, HR, commercially pure,
\$3.20-\$3.70; alloy, \$3.20-\$4.75.

PRIMARY METAL

(Cents per lb unless otherwise noted) Antimony, American, Laredo, Tex., 29.50 Beryllium Aluminum 5% Be, Dollars

REMELTED METALS

(Cents per lb delivered, carloads)

No. 123 27.25
80-10-10 ingot 26.25
No. 305 32.75
No. 315 30.50
88-10-2 ingot 40.50
No. 210 40.50
No. 215 37.25
Yellow ingot v ingot 405

Aluminum Ingot

(Cents per lb del'd 30,000 lh and over) 95-5 aluminum-silicon alloys

0.30	copper	max		 24.25-24.50
				24.00-24.25
Piston	alloys	(No. 13)	type)	 26.00-27.00
No. 12	alum.	(No. 2 s	(rade).	 22.75-23.25
				23.25-23.75
				25.75-26.75
				24.00-24.25
AXS-6	79 (1 pe	ct zinc)		 23.00-24.00

(Effective Dec. 30, 1960)

Steel	deoxidizing	aluminum	notch	bar
granul	ated or shot			

Grade	1-95-875	0%		ŀ	ı	į.	į		. 23	75-24.75
	2-92-95%									
										50-22.50
Grade	4-85-90%								91	00-22 00

SCRAP METAL

Brass Mill Scrap (Cents per pound, add 1¢ per lb for ship-ments of 20,000 lb and over)

mec.web	0) 20,00	,,		2.0		1.5	Heavy	Turnings
Copper						v	26	251/4
Yellow	brass						2036	183%
Red br	ass				,	,	2334	221/2
Comm.	bronze						24	23 1/4
Mang.	bronze						1944	18%
	itting r						1956	

Customs Smelters Scrap

cents per pound curioud i	ots, acmerica
to refinery)	
No. 1 copper wire	241/2
No. 2 copper wire	23
Light copper	20
*Refining brass	21
Copper bearing material *Dry copper content.	20

Ingot Makers Scrap

No. 1 copper wire
No. 2 copper wire
Light copper
No. 1 copper INO. 1 copper
No. 1 cop turnings
Hyy, yellow brass solids
Brass pipe
Padiators

Brass pipe Radiators Mixed old cast. Mixed new clips Mixed turnings, dry

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Copper and Brass

No. 1 copper wire	22 -22 1/2
No. 2 copper wire	20 20 3/2
Light conner	18 -18 /2
Auto radiators (unsweated)	12 12 13
No. 1 composition	1 / /2 18
No. 1 composition turnings	16 -17
Cocks and faucets	13 -13 12
Clean heavy vellow brass	12 14 12 12
Brass pipe	13 12-14
New soft brass clippings	1312-14
No. 1 brass rod turnings	1239-13
Aluminum	

Alum. pistons and struts $6\frac{1}{2}$ — 7 Aluminum crankcase $8\frac{1}{2}$ — 9 1160 (Ss) aluminum clippings $11\frac{1}{2}$ — 12 Old sheet and utensils $8\frac{1}{2}$ — 9 Borings and turnings $4\frac{1}{2}$ — 5 Industrial castings 9 — $9\frac{1}{2}$ 2020 (24s) clippings 10 — $10\frac{1}{2}$

New zinc clippings Old zinc Zinc routings Old die cast scrap

Nickel and Monel Nickel and Monel Pure nickel clippings Clean nickel turnings Nickel anodes Nickel rod ends New Monel clippings Clean Monel turnings Old sheet Monel Nickel silver clippings, mixed Nickel silver turnings, mixed 52-54 52-54 52-54 23-23.50 16.50-17 22-23

Miscellaneous

Auto babbitt Mixed common babbitt Solder joints Siphon tops Small foundry type

S	TEEL		rs, blo	OMS,	PIL- ING		SHAPES, UCTUR				STRI	P		
P	RICES	Carbon Rerolling Net Ton	Carbon Forging Net Ton	Alloy Net Ton	Sheet Steel	Carbon	Hi Str. Low Alloy	Carbon Wide- Flange	Hot- rolled	Cold- rolled	Hi Str. H.R. Low Alloy	Hi Str. C.R. Low Alloy	Alloy Hot- rolled	Alloy Cold- rolled
1	Bethlehem, Pa.			\$119.00 B3		5.55 B3	8.10 B3	5.55 B5						
-			\$99.50 R3,	\$119.00 R3,	6.50 B3	5.55 B3	8.10 B3	5.55 B3	\$.10 B3,	7.425 S10,	7.575 B3			
1-	Phila., Pa.	B3	B3	B3						7.875 P15				
-	Harrison, N. J.									1.013 7 72				15.55 CH
	Conshohocken, Pa.		\$104.50 //2	\$126.00 42					5.15 A2		7.575 A2			10.00 C11
-	New Bedford, Mass.		7101.00 710	\$120.00 PIE						7.875 R6				
	Johnstown, Pa.	\$80.00 B3	\$99.50 B3	\$119.00 B3		5.55 B3	8.10 B3							
3 -	Boston, Mass.					-				7.975 T8				15.90 T8
	New Haven, Conn.					-				7.875 DI				
1	Baltimore, Md.									7.425 T8				15.90 T8
-	Phoenixville, Pa.					5.55 P2		5.55 P2						
-	Sparrows Pt., Md.								5.10 B3		7.575 B3			
	New Britain, Wallingford, Conn.			\$119.00 N8						7.875 W1,S7				
-	Pawtucket, R. I. Worcester, Mass.									7.975 N7, A5				15.90 N7 15.70 T8
-	Alton, III.								5.30 L1					
-	Ashland, Ky.								5.10 A7		7.575 A7			
-	Canton-Massillon, Dover, Ohio		\$102.00 R3	\$119.00 R3,						7.425 G#		10.80 G4		
1	Chicago, Franklin Park, Evanston, III.	\$80.00 U1, R3	\$99.50 UI, R3,W8	\$119.00 UI, R3,W8	6,50 <i>UI</i>	5.50 UI, W8,PI3	8.05 UI, YI,W8	5.50 <i>UI</i>	\$.10 W8, N4,AI	7.525 <i>A1</i> , <i>T8</i> , <i>M8</i> 7.525* <i>M8</i>	7.575 W8		8.40 W8, S9,13	15.55 Al S9,G4,7
1	Cleveland, Ohio									7.425 A5, J3		10.75 A5	8.40 J3	15.60 N
1	Detroit, Mich.			\$119.00 R5					5.10 G3, M2	7.425 M2, S1, D1, P11, B9	7.575 G3	10.80 SI		
_	Anderson, Ind.				-	-				7.425 G4				-
WEST	Gary, Ind. Harbor, Indiana	\$80.00 U1	\$99.50 UI	\$119.00 UI		5.50 UI,	8.05 U1,	5.50 /3	5.10 UI, I3, YI	7.425 YI	7.575 UI. 13, YI	10.90 Y/	8.40 U1, Y1	
DLE	Sterling, Ill.	\$80.00 N4				5.50 N4	7.75 N4	5.50 N4	5.20 N4					
MIDDLE	Indianapolis, Ind.							-		7.575 R5				15.70 R
	Newport, Ky.					-			5.10 A9				8.40 /19	-
	Niles, Warren, Ohio Sharon, Pa.		\$99.50 SI; C10	\$119.00 C10.S1	-				5.10 R3, SI	7.425 R3, T4,SI	7.575 R3, SI	10.80 R3, SI	8.40 SI	15.55 S
	Owensboro, Ky.	\$80.00 G5	\$99.50 G5	\$119.00 G5										
	Pittsburgh Midland Butler Aliquippa N. Castle McKeesport Pa.	\$80.00 UI. P6	\$99.50 UI, CII,P6	\$119.00 U CII,B7	6.50 UI	5.50 UI. J3	8.05 U1, J3	5.50 UI	5.10 P6	7.425 J3, B4 M10 7.525 E3			8.40 59	15.55 S 15.60 A
	Weirton, Wheeling, Follansbee, W. Va.				6.50 U1, W3	5.50 W3		5.50 W3	5.10 W3	7.425 W5	7.575 W3	10.80 W3		
	Youngstown, Ohio	\$80.00 R3	\$99.50 Y1, C10	\$119.00 }	7		8.05 Y1		5.10 U	7.425 YI,R	7.575 UI. YI	10.95 Y/	8.40 UI, YI	15.55 R YI
	Fontana, Cal.	\$90.50 K1	\$109.00 K	\$140.00 K	1	6.30 K1	8.85 K1	6.45 KI	5.825 K1	9.20 KI				
	Geneva, Utah		\$99.50 C7			5.50 C7	8.05 C7							
	Kansas City, Mo.					5.60 S2	8.15 S2						8.65 S2	
ST	Los Angeles, Torrance, Cal.		\$109.00 B	2 \$139.00 /	32	6.20 C7, B2	8.75 B2		5.85 C7, B2	9.30 C1,R5			9.60 B2	17.75 J
WEST	Minnequa, Colo.					5.80 C6			6.20 C6	9.375 C6				
	Portland, Ore.					6.25 02								
	San Francisco, Niles Pittsburg, Cal.	1,	\$109.00 E	32		6.15 B2	8.70 B2		5.85 C7, B2					
	Seattle, Wash.		\$109.00 £	32 \$140.00	B2	6.25 B2	8.80 B2		6.10 B2					
	Atlanta, Ga.					5.70 A8			5.10 A8					
SOUTH	Fairfield, City, Ala. Birmingham, Ala.	\$80.00 T	2 \$99.50 T	2		5.50 T2 R3,C16	8.05 T2		5.10 T2, R3,C16		7.575 T2			
Sol	Houston, Lone Star	r,	\$104.50 5	2 \$124.00	S2	5.60 S2	8.15 S2						8.65 S2	

[•] Electro-galvanized-plus galvanizing extras.

				tify producers			a. Last pri		m centa per	1	wise noted.	Latras appry.	
	RICES				SHE	ETS				ROD	Т	INPLATE	†
•	RICES	Hot-rolled 18 ga. & hvyr.	Cold- rolled	Galvanized (Hot-dipped)	Enamel- ing	Long Terne	Hi Str. Low Alloy H.R.	Hi Str. Low Alloy C.R.	Hi Str. Low Alloy Galv.		Cokes* 1.25-lb. base box	Electro** 0.25-lb. base box	Thin 0.25 lb. coating in coils
	Buffalo, N. Y.	5.10 B3	6.275 B3				7.525 B3	9.275 B3		6.40 W6	deduct 35c fr	ed mfg. terne om 1.25-lb.	Prices are for .50 lb.
	Claymont, Del.										lb. 0.25 lb. ac	price 0.75	base box for .45 lb.
1	Coatesville, Pa.										Can-makin BLACKPLAT	E 55 to 128	deduct 15 for .55 lb.
	Conshohocken, Pa.	5.15 A2	6.325 .42				7.575 A2		-		lb. deduct \$2 1.25 lb. coke	base box.	add 15¢; for .60 lb.
	Harrisburg, Pa.										* COKES: add 25c.	1.50-16. : 0.50-lb. add	add 30¢.
EASI	Hartford, Conn.											add 65c: 1.00-	
2	Johnstown, Pa.									6.40 B3	1.00 lb. 0.25	lb. add 65e.	
	Fairless, Pa.	5.15 UI	6.325 UI				7.575 UI	9.325 UI			\$10.50 UI	\$9.20 UI	\$6.35 UI
	New Haven, Conn.												
	Phoenixville, Pa.												
	Sparrows Pt., Md.	5.10 B3	6.275 B3	6.875 B3	6.775 B3		7.525 B3	9.275 B3	10.025 B3	6.50 B3	\$10.40 B3	\$9.10 B3	6.25 B3
	Worcester, Mass.									6.70 A5			
	Alton, III.									6.60 L1	Hal	lawara France	line
	Ashland, Ky.	5.10 A7		6.875 A7	6.775 A7		7.525 A7				29 ga7.85	Oware Ename UI at Gary; nippa; W5 a	Pittsburgh Vorkville
	Canton-Massillon, Dover, Ohio			6.875 R1, R3							YI at Indian 7.95 G2 at G	a Harbor; W5	at Wheeling
	Chicago, Joliet, Ill.	5.10 W8, Al					7.525 U1, W8			6.40 A5, R3,W8			
	Sterling, III.		-							6.50 N4, K2			
	Cleveland, Ohio	5.10 R3, J3	6.275 R3, J3	7.65 R3*	6.775 R3		7.525 R3, J3	9.275 R3, J3		6.40 A5			
	Detroit, Mich.	5.10 G3, M2	6.275 G3, M2				7.525 G3	9.275 G3					
	Newport, Ky.	5.10 A9	6.275 A9			-							
WEST	Gary, Ind. Harbor, Indiana	5.10 UI, I3, YI	6.275 U1, 13, Y1	6.875 UI, 13	6.775 U1, 13, Y1	7.225 UI	7.525 UI, YI,I3	9.275 UI, YI		6.40 YI	\$10.40 UI. YI	\$9.10 <i>13</i> , <i>U1,Y1</i>	\$6.25 UI
LE	Granite City, III.	5.20 G2	6.375 G2	6.975 G2								\$9.20 G2	
MIDDLE	Kokomo, Ind.			6.975 C9						6.50 C9			
2	Manafield, Ohio	5.10 E2	6.275 E2			7.225 E2							
	Middletown, Ohio		6.275 A7	6.875 A7	6.775 A7	7.225 A7							
	Niles, Warren, Ohio Sharon, Pa.	5.10 R3, SI	6.275 R3	6.875 R3 7.65 R3*	6.775 SI	7.225 SITT R3	7.525 R3, SI	9.275 R3				\$9.10 R3	
	Pittsburgh, Midland, Butler, Aliquippa, McKeesport Pa.	5.10 UI, J3,P6	6.275 UI. J3,P6	6.875 U1, J3 7.50 E3*	6.775 UI		7.525 UI, J3	9.275 UI, J3	10.025 UI, J3	6.40 A5, J3,P6	\$10.40 U1, J3	\$9.10 UI, J3	\$6.25 UI
	Portsmouth, Ohio	5.10 P7	6.275 P7			-		-	-	6.40 P7			
	Weirton, Wheeling, Follansbee, W. Va.	5.10 W3, W5	6.275 W3, F3,W5	6.875 W3, W5 7.50 W3*		7.225 W3, W5	7.525 W3	9.275 W3			\$10.40 W5, W3	\$9.10 W5, W3	
	Youngstown, Ohio	5.10 UI, YI	6.275 YI		6.775 Y/		7.525 YI	9.275 Y1		6.40 Y/			
_	Fontana, Cal.	5.825 K1	7.40 K1				8.25 K1	10.40 KI			\$11.05 <i>K1</i>	\$9.75 K1	
	Geneva, Utah	5.20 C7											
_	Kansas City, Mo.									6.65 S2			
WEST	Los Angeles, Torrance, Cal.									7.20 B2			
	Minnequa, Colo.									6.65 C6			
	San Francisco, Niles, Pittsburg, Cal.	5.80 C7	7.225 C7	7.625 C7				-		7.20 C7	\$11.05 C7	\$9.75 C7	
-	Atlanta, Ga.		-						-			-	
SOUTH	Fairfield, Ala. Alabama City, Ala.	5.10 72, R3	6.275 T2, R3	6.875 T2, R3	6.775 T2					6.40 T2,R3	\$10.50 T2	\$9.20 T2	\$6.35 TZ
S	Houston, Tesas							-		6.65 S2			

5	TEEL			BAF	RS				PLAT	ES		WIRE
P	RICES	Carbon† Steel	Reinforc-	Cold Finished	Alloy Hot- rolled	Alloy Cold Drawn	Hi Str. H.R. Low Alloy	Carbon Steel	Floor Plate	Alloy	Hi Str. Low Alloy	Mír's. Bright
	Bethlehem, Pa.				6.725 B3	9.025 B3	8.30 B3					
	Buffalo, N. Y.	5.675 R3,B3	5.675 R3,B3	7.70 B5	6.725 B3,R3	9.025 B3,B5	8.30 B3	5.30 B3				8.00 W6
	Claymont, Del.							5.30 P2		7.50 P2	7.95 P2	
1	Coatesville, Ps.							5.30 L4		7.50 L4	7.95 L4	
1	Conshohocken, Pa.							5.30 A2	6.375 A2	7.50 A2	7.95 A2	
1	Harrisburg, Pa.							5.30 P2	6.375 P2			
-	Milton, Pa.	5.825 M7	5.825 M7									
	Hartford, Conn.			8.15 R3		9.325 R3						
	Johnstown, Pa.	5.675 B3	5.675 B3		6.725 B3		8.30 B3	5.30 B3		7.50 B3	7.95 B3	8.00 B3
EAS	Steelton, Pa.		5.675 B3									
-	Fairless, Pa.	5.825 UI	5.825 UI									
	Newark, Camden, N. J.			8.10 W10, P10		9.20 W10, P10						
	Bridgeport, Putnam, Willimantic, Conn.			8.20 W/O 8.15 J3	6.80 N8	9.175 N8						
	Sparrows Pt., Md.		\$.675 B3					5.30 B3		7.50 B3	7.95 B3	8.10 B3
	Palmer, Worcester, Readville, Mansfield, Mass.			8.20 B5. C14		9.325 A5,B5						8.30 A5, W6
	Spring City, Pa.			8.10 K4		9.20 K4						
-	Alton, III.	5.875 L1										8.20 L1
	Ashland, Newport, Ky.			~				5.30 47, 49		7.50 /19	7.95 A7	
	Canton, Massillen, Mansfield, Ohio	6.15° R3		7.65 R3,R2	6.725 R3, T5	9.025 R3,R2, T5		5.30 E2				
	Chicago, Joliet, Waukegam, Madison, Harvey, III.	5.675 UI, R3, W8,N4,P13	5.675 U1,R3, N4,P13,W8 5.875L1	7.65 A5, W10.WB, B5,L2,N9	6.725 UI,R3, W8	9.025 A5, W 10,W8, L2,N8,B5	8.30 U1,W8, R3	5.30 UI, AI, W8, I3	6,375 UI	7.50 U1, W8	7.95 UI. W8	8.00 A5, R W8, N4, K2, W7
	Cleveland, Elyria, Ohio	5.675 R3	5.675 R3	7.65 A5,C13, C18		9.025 A5, C13,C18	8.30 R3	\$.30 R3,J3	6.375 J3		7.95 R3,J3	8.00 A5, C13,C18
	Detroit, Plymouth, Mich.	5.675 G3	5.675 G3	7.90 P3 7.85 P8B5H2 7.65 R5	6.725 R5,G3	9.025 R5,P8 9.225 B5,P3	8.30 G3	5.30 G3		7.50 G3	7.95 G3	
EST	Duluth, Minn.											8.00 A5
DLE WI	Gary, Ind. Harbor, Crawfordaville, Hammond, Ind.	5.675 U1,13, Y1	5 675 U1,13,	7.65 R3,J3	6.725 U1,13, Y1	9.025 R3,M4	8.30 UI, YI	5.30 U1.13. Y1	6.375 <i>J</i> 3,	7.50 UI, YI	7.95 U1, Y1,13	8.10 M4
MIDDL	Granite City, III.							5.40 G2				
	Kokomo, Ind.		5.775 C9									8.10 C9
	Sterling, Ill.	5.775 N#	5.775 N4				7.925 N4	5.30 N4			7,625 N4	8.10 K2
	Niles, Warren, Ohio			7.65 C10	6.725 C10,	9.025 C10		5.30 R3,S1		7.50 S1	7.95 R3, SI	
	Sharon, Pa. Owensboro, Ky.	0.670.73			6.725 G5			-			- 31	
	Pittsburgh, Midland Donora, Aliquippa, Pa.	5.675 C5 5.675 U1, J3	5.673 U1, J3	7.65 A5.B4. R3.J3.C11, W10,S9,C8,	6.725 U1.J3, C11.B7	9.025 A5, W10,R3,S9 C11,C8,M9	8.30 U1,J3	5.30 U1, J3	6.375 UI, J3	7.50 UI, J3,B7	7.95 U1, J3,B7	8.00 A5, J3,P6
				M9								
	Portsmouth, Ohio Youngstown, Steubenville, O.		5.675 U1,R3,	7.65 AI, YI,	6.725 UI, YI	9.025 Yi,F2	8.30 UI, YI	\$.30 U1.W5, R3, Y1		7.50 Y/	7.95 UI, YI	8.00 P7 8.00 Y1
_	Emeryville,	6.425 /5	6.425 /5		7.775 K1		9.00 K/	6.10 KJ		8.30 K1	8.75 K1	
	Fontana, Cal. Geneva, Utah	6,375 K1	6.375 K I					5.30 C7			7.95 C7	
	Kansas City, Mo.	5.925 52	5.675 52	-	6.975 52		8.55 S2					8.25 S2
ST	Los Angeles, Torrance, Cal.		6.375 C7,B2	9.10 R3,P14 S/2		11.00 P/4, B5	9.00 B2					8.95 B2
WES	Minnegua, Colo.	6.125 C6	6.125 C6					6.15 C6				8.25 C6
	Portland, Ore.	6.425 02	6.425 02									
	San Francisco, Niles	6.375 C7	6.375 C7				9.05 B2					8.95 C7,0
	Pittsburg, Cal. Seattle, Wash.	6.425 B2 6.425 B2,N6	6.425 B2 6.425 B2,47	0	7.825 B2		9.05 B2	6.20 62		8.40 B2	8.85 B2	
-	Atlanta, Ga.	5.875 .48	5.25 A8									8.00 .48
SOUTH		-	5.675 T2,R3 C16	8.25 C/6	-		8.30 T2	5.30 T2,R3			7.95 T2	8.00 T2,
SO	Houston, Ft. Worth Lone Star, Texas, Sand Springs, Okl	5.925 S2	5.675 S2		6.975 52		8.55 52	5.40 S2		7.60 52	8.05 S2	8.25 52

[†] Merchant Quality—Special Quality 35¢ higher. (Effective Dec. 30, 1960)

^{*} Special Quality.

STEEL PRICES

Key to Steel Producers

With Principal Offices

- Al Acme Steel Co., Chicago
- A2 Alan Wood Steel Co., Conshohocken, Pa.
- 43 Allegheny Ludlum Steel Corp., Pittsburgh
- American Cladmetals Co., Carnegie, Pa.
- American Steel & Wire Div., Cleveland
- 46 Angel Nail & Chaplet Co., Cleveland 47
- Armco Steel Corp., Middletown, Ohio 48
- Atlantic Steel Co., Atlanta, Ga. Acme Newport Steel Co., Newport, Ky.
- Ald Alaska Steel Mills, Inc., Seattle, Wash.
- BIBabcock & Wilcox Tube Div., Beaver Falls, Pa.
- B2 Bethlehem Steel Co., Pacific Coast Div. Bethlehem Steel Co., Bethlehem, Pa.
- B2 3
- R4 Blair Strip Steel Co., New Castle, Pa.
- 815 Bliss & Laughlin, Inc., Harvey, Ill.
- Brooke Plant, Wickwire Spencer Steel Div., Birdsboro, Pa. B6
- A. M. Byers, Pittsburgh
- BRBraeburn Alloy Steel Corp., Braeburn, Pa.
- R9Barry Universal Corp., Detroit, Mich.
- CI Calstrip Steel Corp., Los Angeles
- Carpenter Steel Co., Reading, Pa.
- Colorado Fuel & Iron Corp., Denver
- C7 Columbia Geneva Steel Div., San Francisco
- C8 Columbia Steel & Shafting Co., Pittsburgh
- Continental Steel Corp., Kokomo, Ind. C10 Copperweld Steel Co., Pittaburgh, Pa.
- CII Crucible Steel Co. of America, Pittsburgh
- C13 Cuyahoga Steel & Wire Co., Cleveland
- C14 Compressed Steel Shafting Co., Readville, Mass.
- C15 G. O. Carlson, Inc., Thorndale, Pa.
- C16 Connors Steel Div., Birmingham
- C/8 Cold Drawn Steel Plant, Western Automatic Machine Screw Co., Elyria, O.
- DI Detroit Steel Corp., Detroit Driver, Wilbur B. Co., Newark, N. J. 1)2
- Driver Harris Co., Harrison, N. I.
- Dickson Weatherproof Nail Co., Evanston, Ill.
- El Eastern Stainless Steel Corp., Baltimore
- E2 Empire Reeves Steel Corp., Mansfield, O.
- Es Enamel Products & Plating Co., McKeesport, Pa.
- EI Firth Sterling, Inc., McKeesport, Pa.
- F2 Fitzsimons Steel Corp., Youngstown
- F3Follansbee Steel Corp., Follansbee, W. Va
- G2 Granite City Steel Co., Granite City, III.
- G3 Great Lakes Steel Corp. Detroit Greer Steel Co., Dover, O.
- 65 Green River Steel Corp., Owenboro, Ky.
- HI Hanna Furnace Corp., Detroit
- 112 Hercules Drawn Steel Corp., Toledo, O.
- Ingersoll Steel Div., New Castle, Ind.
- Inland Steel Co., Chicago, Ill.
- 10 Interlake Iron Corp., Cleveland
- Jackson Iron & Steel Co., Jackson, O. 11
- Jessop Steel Corp., Washington, Pa. 12
- 13 Jones & Laughlin Steel Corp., Pittsburgh
- Joslyn Mtg. & Supply Co., Chicago
- Judson Steel Corp., Emeryville, Calif.
- KI Kaiser Steel Corp., Fontana, Calif. Keystone Steel & Wire Co., Peoria
- K4 Keystone Drawn Steel Co., Spring City, Pa.
- Laclede Steel Co., St. Louis
- 12 La Salle Steel Co., Chicago
- 1.3 Lone Star Steel Co., Dallas
- L4 Lukens Steel Co., Coatesville, Pa.
- MI Mahoning Valley Steel Co., Niles, O.
- 142 McLouth Steel Corp., Detro
- A43 Mercer Tube & Mig. Co., Sharon, Pa
- Mid States Steel & Wire Co., Crawfordsville, Ind. MA
- Milton Steel Products Div., Milton, Pa. Mill Strip Products Co., Evanston, Ill. M8
- M9 Moltrup Steel Products Co., Beaver Falls, Pa.
- MIO Mill Strip Products Co., of Pa., New Castle, Pa.
- NI National Supply Co., Pittsburgh
- N2 National Tube Div., Pittsburgh
- No Northwestern Steel & Wire Co., Sterling, Ill.
- No Northwest Steel Rolling Mills, Seattle

- N7 Newman Crosby Steel Co., Pawtucket, R. I.
- N8 Carpenter Steel of New England, Inc., Bridgeport, Conn.
- N9 Nelson Steel & Wire Co.
- Oliver Iron & Steel Co., Pittsburgh
- 02 Oregon Steel Mills, Portland
- PI Page Steel & Wire Div., Monessen, Pa.
- P2 Phoenia Steel Corp., Phoeniaville, Pa.
- Pilgrim Drawn Steel Div., Plymouth, Mich.
- Pittsburgh Coke & Chemical Co., Pittsburgh P6 Pittsburgh Steel Co., Pittsburgh
- P7 Portsmouth Div., Detroit Steel Corp., Detroit
- Plymouth Steel Co., Detroit
- P9 Pacific States Steel Co., Niles, Cal. P10 Precision Drawn Steel Co., Camden, N. J.
- P11 Production Steel Strip Corp., Detroit
- P13 Phoenix Mfg. Co., Joliet, Ill.
- P14 Pacific Tube Co.
- P15 Philadelphia Steel and Wire Corp.
- RI Reeves Steel & Mfg. Div., Dover, O.
- R2 Reliance Div., Eaton Mfg. Co., Massillon, O.
- R3 Republic Steel Corp. Cleveland
- R4 Roebling Sons Co., John A., Trenton, N. J.
- R5 Jones & Laughlin Steel Corp., Stainless and Strip Div.
- R6 Rodney Metals, Inc., New Bedford, Mass.
- R7 Rome Strip Steel Co., Rome, N. Y.
- SI Sharon Steel Corp., Sharon Pa.
- 52 Sheffield Steel Div., Kansas City
- S3 Shenango Furnace Co., Pittsburgh
- S# Simonda Saw and Steel Co., Fitchburg, Mass.
- S5 Sweet's Steel Co., Williamsport, Pa.

- S7 Stanley Works, New Britain, Conn.
- Superior Drawn Steel Co., Monaca, Pa 58
- Superior Steel Div. of Copperweld Steel Co. 59
- S10 Seneca Steel Service, Buffalo
- S11 Southern Electric Steel Co., Birmingham
- S12 Sierra Drawn Div., Bliss & Laughlin, Inc., Los Angeles, Calif.
- S13 Seymour Mfg. Co., Seymour, Conn.
- S14 Screw and Bolt Corp. of America, Pittsburgh, Pa.
- 71 Tonawanda Iron Div., N. Tonawanda, N. Y.
- 72 Tennessee Coal & Iron Div., Fairfield
- 73 Tennessee Products & Chem. Corp., Nashville
- 74 Thomas Strip Div., Warren, O.
- 75 Timken Steel & Tube Div., Canton, O.
- 77 Texas Steel Co., Fort Worth
- Th Thompson Wire Co., Boston
- Ul United States Steel Corp., Pittsburgh U2 Universal Cyclops Steel Corp., Bridgeville, Pa.
- U3 Ulbrich Stainless Steels, Wallingford, Conn.
- U4 U. S. Pipe & Foundry Co., Birmingham
- WI Wallingford Steel Co., Wallingford, Conn.
- W2 Washington Steel Corp., Washington, Pa.
- W3 Weirton Steel Co., Weirton, W. Va.
- W4 Wheatland Tube Co., Wheatland, Pa
- W5 Wheeling Steel Corp., Wheeling, W. Va.
- W6 Wickwire Spencer Steel Div. Buffalo
- W7 Wilson Steel & Wire Co., Chicago.

- W8 Wisconsin Steel Div., S. Chicago, Ill. W9 Woodward Iron Co., Woodward, Ala. W10 Wyckoff Steel Co., Pittsburgh W12 Wallace Barnes Steel Div., Bristol, Conn.
- YI Youngstown Sheet & Tube Co., Youngstown, O.

STEEL SERVICE CENTER PRICES

Metropolitan Price, dollars per 100 lb.

Cities		Sheets	- 1	Strip	Plates	Shapes	Ba	ra		Alloy	Bars	
City Delivery; Charge	Hot-Rolled (18 ga. & hvr.)	Cold-Rolled (15 gage)	Galvanized (10 gage) ??	Hot-Rolled		Standard Structura l	Hot-Rolled (merchant)	Cold- Finished	Hot-Rolled 4615 As rolled	Hot-Rolled 4140 Annealed	Cold-Drawn 4615 As rolled	Cold-Drawn 4140
Atlanta	9.37	10.61	11.83	10.85	9.73	9.94	9.53	13.24				
Baltimore**\$.10	7.87	9.71	10.16	10.28	8.44	9.13	8.65	11.80	17.48	16.48	21.58	20.83
Birmingham**	8.46	10.20	10.69	9.45	8.41	8.47	8.26	13.14	16.76	16,76	1-461-	
Boston**10	9.84	10.68	11.87	12.26	9.72	10.26	9.87	13.45	17.79	16.79	23.89	21.14
Buffalo**15	8.80	9.95	11.40	11.15	8.80	9.30	8.90	11.60	17.45	16.45	21.55	20.80
Chicago**15	8.72	10.35	10.30	10.89	8.56	9.06	8.70	10.80	17.10	16.10	21.20	20.45
Cincinnati**15	8.89	10.41	10.35	11.21	8.94	9.62	9.02	11.68	17.42	16.42	21.52	20.77
Cleveland** 15	8.721	10.13	11.39	11,01	8.80	9,45	8.81	11.40	17.21	16.21	21.31	20.56
Denver**	10.90	12.53	13.27	13.07	10.74	11.24	10.88	12.97	113130			20.84
Detroit**	8.98	10.61	10.65	11.26	8,93	9.62	9.01	11.16	17.38	16.38	21.48	20.73
Houston**	9.22	9.65	12.193	10.78	8.95	8.86	8.63	13.10	17.50	16.55	21.55	20.8
Kansas City** 15	9.59	11.42	10.95	11.76	9.43	9.93	9.57	11.77	17.17	15.87	21.87	21.13
Los Angeles**	9.501	11.20	12.20	11.29	9.70	10.45	9.55	14.29	18.30	17.35	22.90	22.20
Memphis**15	9.13	10.50		10.79	8.81	9.16	8.97	12.89	17411			12.50
Milwaukee**15	8.86	10.49	10.44	11.03	8.70	9.28	8.84	11.04	17.24	16.24	21.24	20.59
New York 10	9.46	10.23	11.45	11.56	9.61	10.30	9.84	13.35	17.50	16.50	21.60	20.8
Norfolk20	8.20			8.90	8.65	9.20	8.90	10.70				
Philadelphia**10	8.45	9.70	10.76	10.45	8.80	9.05	8.85	12.05	17.48	16.48	21.58	20.83
Pittsburgh**15	8.72	10.13	11.28	10.99	8.56	9.06	8.70	11.40	17.10	16.10	21.20	20.4
Portland**	9.45	11.30	12.35	11.45	9.60	10.05	9.45	16.65	18.60	17.80	22.70	22.20
San Francisco** .10	10.27	11.792	11.50	11.88	10.48	10.59	10.17	15.20	18.30	17.35	22.90	22.20
Seattle**	10.51	11.57	12.50	11.95	10.10	10.65	9.94	16.20	18.60	17.80	22.70	22.20
Spokane**15	10.51	11.57	12.50	11.95	10.10	10.65	9.94	16.35	17.75	17.95	21.58	22.3
St. Louis** 15	8.92	10.73	10.68	11.09	8.77	9.29	8.92	11.43	17.48	16.48	21.58	20.8
St. Paul**15	8.99	9.84	10.99	11.16	8.83	9.33	8.97	11.64		16.69		21.0

Base Quantities (Standard unless otherwise keyed): Cold finished bars: 2000 lb or over. Alloy bars: 1000 to 1999 lb. All others: 2000 to 4999 lb. All HB products may be combined for quantity. All galaxnized sheets may be combined for quantity. All galaxnized sheets may be combined for quantity. ** These cities are on net pricing. Prices shown are for 2000 lb item quantities of the following: Hot-rolled sheet—10 ga. x 36 x 96-120; Cold-rolled sheet—20 ga. x 36 x 96-120; Cold-rolled sheet—20 ga. x 36 x 96-120; Cold-rolled sheet—20 ga. x 36-120; The cold-rolled sheet—30 ga. x 36-120; The cold-rolled

\$\$ 13c zinc. 1 Deduct for country delivery 115 ga, & heavier; 214 ga. & lighter. \$ 10 ga x 48 - 120

285

Producing Point	Basic	Fdry.	Mall.	Bess.	Low Phos.
Birdshere, Pa. B6	68.00	68.50	69.00	69.50	73.00
Birmingham R3	62.00	62.50°	66.50		
Birmingham W9.	62.00	62.50°	66.50		
Birmingham U4	62.00	62.50°	66.50		
Buffalo R3	66.00	66.50	67.00	67.50	
Buffalo HI	66.00	66.50	67.00	67.50	71.50
Buffalo H 6	66.00	66.50	67.00	67.50	
Chester P2	68.00	68.50	69.00		
Chicago 14	66.00	66.50	66.50	67.00	
Cleveland 45	66.00	66.50	66.50	67.00	71.00
Cleveland R3	66,00	66.50	66.50	67.00	
Duluth /4	66.00	66.50	66.50	67.00	71.00
Erie 14	66.00	66.58	66.50	67.00	71.00
Fontana K1	75.00	75.50			
Geneva, Utah C7	66.00	66.50			
Granite City G2	67.90	68.40	68.90		******
Hubbard Y7			66.50		
Ironton, Utah C7	66.00	66.50			
Lyles, Tenn. 73					73.00
Midland C//	66.00				
Minnegua C6	68.00	68.50	69.00		
Monessen P6	66.00				
Neville Is. P4	66.00	66.50	66.50	67.00	71.001
N. Tonawands 71		66.50	67.00	67.50	
Rockwood T3	62.00	62.50	66.50	67.00	73.00
Sharpsville Si	66.00		66.50	67.00	
So. Chicago R3	66.00	66.50	66.50	67.00	
Se. Chicago W8.	66.00		66.50	67.00	
Swedeland 42	68.00	68.50	69.00	69.50	73.001
Toledo /4	66-00	66.50	66.50	67.00	
Troy, N. Y. R3	68.00	68.50	69.00	69.50	73.00
Youngstown Y/			66.50		
4					

DIFFERENTIALS: Add, 75¢ per ton for each 0.25 pet nilicon or portion thereof over base (1.75 to 2.25 pet except law phose, 1.75 to 2.00 pet) 50¢ per ton for each 0.25 pet manganese or portion thereof over 1 pet, 32 per ton for 0.50 to 0.75 pet nickel, \$1 for each additional 0.25 pet nickel, Add \$1.00 for 0.31-0.69 pet phos. Add \$0¢ per gross ton for truck loading charge.

Silvery Iron: Buffalo (6 pct), HI, \$79.25; Jackson JI, I4, (Globe Div.), \$78.00; Ningara Falla (15.01-15.50), \$101.00; Keokuk (14.01-14.50), \$89.00; (15.51-16.00), \$92.00. Add 75c per ton for each 0.50 pct silicon over base (6.01 to 6.50 pct) up to 13 pct. Add \$1.00 for each 0.50 pct manganese over 1.00 pct.

† Intermediate low phos.

FASTENERS

(Base discounts, f.o.b. mill, based on latest list prices)

Hex Screws and All Bolts Including Hex & Hex, Square Machine, Carriage, Lag Play Step and Floyator

Pct	(Discount for 1 container)
50	Plain finish-packaged and bulk.
	Hot galvanized and zinc plated- packaged
	Hot galvanized and zinc plated- bulk

Nuts: Hexagon and Square, Hex, Heavy Hex, Thick Hex & Square

Pct	(Discount for 1 container)
50	Plain finish-packaged and bulk.
43.75	Hot galvanized and zinc plated- packaged
50	Hot galvanized and zinc plated- bulk

Hexagon Head Cap Screws-UNC or UNF Thread-Bright & High Carbon (Discount for 1 container)

	finish-packaged and bulk.	50
	alvanized and zinc plated—	43.75
Hot g	alvanized and zinc plated—	50

(On all the above categories add 25 pct for less than container quantities. Minimum plating charge-\$10.00 per item. Add 71/2 pct for nuts assembled to bolts)

Machine Screws and Stove Bolts (Packages-plain finish)

	Disco	HILL		
Full Cartons	Screws 46	Bolts 46		
Machine Screws-b	ulk			
¼ in. diam or smaller	25,000 pcs	50		
5/16, % & 1/2 in. diam	15,000 pcs	50		

Product 201 202 301 302 303 304 316 321 347 403 410 416 430

	-							_					-
Ingots, reroll.	22.75	24.75	24.00	26.25	_	28.00	41.25	33.50	38.50	-	17.50	-	17.75
Slabs, billets	25.00	28.25	26.88	29.50- 32.75	32.00	29.50- 34.50	47.50	38.00	46.50	-	19.25-	-	19.75
Billets, forging		37.75	38.75	39.50	42.50	39.50	64.50	48.75	57.75	29.25	29.25	29.75	29.75
Bars, struct.	43.50	44.50	46.00	46.75	49.75	46.75	75.75	57.50	67.25	35.00	35.00	35.50	35.50
Plates	39.25	40.00	41.25	42.25	45.00	45.75	71.75	54.75	64.75	30.00	30.00	31.25	31.00
Sheets	48.50	49.25	51.25	52.00	56.75	52.00	80.75	65.50	79.25	40.25	40.25	48.25	40.75
Strip, hot-rolled	36.00	39.00	37.25	40.50	_	40.50	68.50	53.50	63.50	-	31.00	-	32.00
Strip, cold-rolled	45.00	49.25	47.50	52.00	56.75	52.00	80.75	65.50	79.25	40.25	40.25	42.50	40.75
Wire CF; Rod HR	-	42.25	43.50	44.25	47.25	44.25	71.75	54.50	63.75	33.25	33.25	33.75	33.75

STAINLESS STEEL PRODUCING POINTS:

Sheets: Midland, Pa., CI1; Brackenridge, Pa., A3; Butler, Pa., A7; Vandergrift, Pa., U1; Washington, Pa., W2, J2; altimore, E1; Middletown, O., A7; Massillon, O., R3; Gary, U1; Bridgeville, Pa., U2; New Castle, Ind., I2; Detroit, M2; Baltimore, El; M Louisville, O., RS.

Strip: Midland, Pa., Cl1; Waukegan, Cleveland, A5; Carnegie, Pa., S9; McKeeaport, Pa., F1; Reading, Pa., C2; Washington, Pa., W2; W. Leechburg, Pa., A3; Bridgeville Pa., U2; Detroit, M2; Detroit, S1; Canton, Massillon, O., R3; Harrison, N. J., D3; Youngstown, R5; Sharon, Pa., S1; Butler, Pa., A7, Wallingford, Conn., U3 (plus further conversion extras): W1 [25e per lb. higher); Seymour, Conn., S13, (25e per lb. higher); New Bedford, Mass., R6 Gary, U1, (25e per lb. higher); (25e per lb. higher); Seymour, Conn Baltimore, Md., El (300 series only).

Bar: Baltimore, A7; S. Duquesne, Pa., U1; Munhall, Pa., U1; Reading, Pa., C2; Titusville, Pa., U2; Washington, Pa., J2; McKeesport, Pa., U1, F1; Bridgeville, Pa., U2; Dunkirk, N. Y., A3; Massillon, O., R5; S. Chicago, U1; Syracuse, N. Y., C11; Watervliet, N. Y., A3; Waukegan, A5; Canton, O., T5, R3; Ft. Wayne, 14; Detroit, R5; Gary, U1; Owensboro, Ky., G5; Bridgeport, Conn., N8; Ambridge, Pa., B7.

Wire: Waukegan, A5; Massillon, O., R3; McKeesport, Pa., F1; Ft. Wayne, J4; Newark, N. J. D2; Harrison, N. J., D3; Baltimore, A7; Dunkirk, A3; Monessen, P1; Syracuse, C11; Bridgeville, U2; Detroit, R5; Reading, Pa., C2; Bridgeport, Conn., N8 (down to and including ¼*).

Structurals: Baltimore, A7; Massillon, O., R3; Chicago, Ill., J4; Watervliet, N. Y., A3; Syracuse, C11; S. Chicago, U1.

Plates: Ambridge. Pa., B7; Baltimore, E1; Brackenridge. Pa., A3; Chicago, U1; Munhall, Pa., U1; Midland, Pa., C11; New Castle, Ind., I2; Middletown, A7; Washington, Pa., J2; Cleveland, Marsillon, R3; Coatesville, Pa., C15; Vandergrift, Pa., U1; Gary, U1.

Forging billets: Ambri dge, Pa., B7; Midland, Fa., C11; Baltimore, A7; Washington, Pa., J2; McKecsport, F1; Massillon, Canton, O., R3; Water-liet, A3; Pittsburgh, Chicago, U1; Syracuse, C11; Detroit, R5; Munhall, Pa., S. Chicago, U1; Owensboro, Ky., G5; Bridgeport, Conn., N8; Reading, Pa., C2.

Machine Screw and Stove Bolt Nuts

(Packages-plain finis	h) Disco	ount
Full Cartons	Hex 46	Square 57
Bulk		
¼ in. diam or smaller	25,000 pcs	
5/16 or % in. diam	56	60
	15,000 pcs	60

Rivets

						100 16
1/2	in.	diam	and	larger	 	\$12.85
					Pct (off List
7/	16 i	n. and	sma	ller	 	15

TOOL STEEL

F.o.b.	mils					
W	Cr	V	Mo	Co	per lb	SAE
18	4	1	-	_	\$1.84	T-1
18	4	1	-	5	2.545	T-4
18	4	2	-	_	2.005	T-2
1.5	4	1.5	8	emen	1.20	M-1
6	4	3	6	otherwise .	1.59	M-3
6	4	2	5	Stewar	1.345	34-2
High-	carbo	n chr	omiur	n	.955 I)-3, D-3
Oil ha	irdene	d ma	ngane	ese	.505	O-2
Specia	al car	rbon			.38	W-1
Extra					.38	W-1
Regul					.325	W-1
			ces of	n and	east of	

sippl are 4¢ per lb higher. West of Mississippl, 6¢ higher.

LAKE SUPERIOR ORES

51.50% Fe natural, delivered lower L ports. Interim prices for 1960 sea: Freight changes for seller's according Gross	son.
Openhearth lump	2.70
Mesabi, bessemer 1	1.70 1.60
	1.45

MERCHANT WIRE PRODUCTS

	Standard & Coated Nails	Woven Wire Fence	"T" Fence Posts	Single Loop Bale Ties	Galv. Barbed and Twisted Barbless Wire	Merch. Wire Ann'ld	Merch. Wire Galv.
F.e.b. Mill	Col	Col	Col	Col	Col	¢ lb.	¢/lb.
Alabama City R3	173	187		212	193	9.00	9.55
Aliquippa /3***	173	190			190	9.00	9.675
Atlanta 48**		191		212	197		9.75
Bartonville K2**	175	193		214		9.10	9.85
Buffalo W6							9.55*
Chicago N4		191	177	212	197	9.00	9.75
Chicago R3						9.00	9.55
Chicago W7						9.00	9.551
Cleveland A6							
Cleveland A5							
Crawf day. M4""		193	1		199	9.10	9.85
Donora, Pa. A5.	173	187			193	9.00	9.55
Duluth A5	173	187	177		193	9.00	9.55
Fairfield, Ala. 72	173	187			193	9.00	9.55
Galveston D4	9.10:						
Houston 52	178	192			198		9.881
Jacksonville M4	184-1	197		219	203	9.10	9.775
Johnstown B3**	173	190	177		196	9.00	9.675
Joliet, Ill. 45	173	187		212			9.55
Kokomo C9*	175	189		214	195°	9.10	9.65*
L. Angeles B2***						9.95	10.625
Kansas City S2*.	178	192			198*	9.25	9.801
Minnequa C6	178	192			1981	9.25	9.801
Palmer, Mass. W6							9.85*
Pittsburg, Cal. C7		210				9.95	10.50
Rankin Pa. A5	173	187			193		9.55
So. Chicago R3.	173	187			193	8.65	9.28
S. San Fran. C6.						9.95	10.50
SparrowsPt.B3**					198	9.10	9.775
Struthers, O. Y/*						8.65	9.20
Worcester A5							
Williamsport S5							

• Zinc less than .10¢. ••• .10¢ zinc. •• 13-13.5¢ zinc. † Plus zinc extras. ‡ Wholesalers only.

(Effective Dec. 30, 1960)

							BUTT	WELD										SEAM	LESS			
	1/2	In.	3/4	la.	11	n.	11/4	In.	11/2	In.	2 1	la.	21/2-	3 In.	2	łn.	21/2	In.	3	ln.	31/2-	4 ln.
STANDARD T. & C.	Bik.	Gal.	Blk.	Gal.	Bik.	Gal.	Blk.	Gal.	Blk.	Gal.	Bik.	Gal.	Blk.	Gal.	Bik.	Gal.	Bik.	Gal.	Blk.	Gal.	Blk.	Gal
Sparrows Pt. B3	0.25	+15.0	3.25		6.75		9.25			+4.75			11.75									
foungstown R3	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25		*2.50			Sec.					
		*26.00		*22.00	+4.25	*17.50	*1.75	*16.75	*1.25	*15.75		*15.25	0.75	*15.50								
Pittsburgh /3	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50	*12.25	*27.25	*5.75	*22.50	*3.25	*20.0	*1.75	*18.5
Alton, III. L1	0.25	*15.0	3.25	*11.0	6.75	*6.50	9.25	*5.75	9.75	*4.75	10.25	*4.25	11.75	*4.50								
Sharon Mi	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50								
airless N2	0.25	*15.0	3.25	*11.0	6.75	*6.50	9.25	*5.75	9.75	*4.75	10.25	*4.25	11.75	*4.50		22.00	102 52	12275	22722	122 3	11.11	
ittaburgh N/	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*7.25	13.75	*2.50	*12.25	+27.25	*5.75	+22.50	*3.25	*20.0	*1.75	*18.5
Vheeling W5	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50								
Wheatland W4	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50			40 40		40.00	144		400 0
Joungstown Y/	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*Z.Z5	13.75	*2.50	*1Z.Z5	*27.25	*5.75	*22.50	+3.25	*20.0	*1.75	*18.5
ndiana Harbor Y1	1.25	*14.0	4.25	*10.0	7.75	*5.50	10.25	+4.75	10.75	*3.75	11.25				*** **	407 05	45 75	400 50	40 00	400 0	44 00	A10 F
Lorain /VZ	2.25	*13.0	5.25	*9.0	8.75	*4.50	11.25	*3.75	11.75	*2.75	12.25	*2.25	13.75	*2.50	*12.25	*27.25	*5.75	*22.50	*3.25	*20.0	*1.75	*18.5
EXTRA STRONG PLAIN ENDS																						
Sparrows Pt. B3	4.75	*9.0	8.75	*5.0	11.75	+0.50	12.25	+1.75	12.75		13.25		13.75									
foungstown R3	6.75	+7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75		0.50								
Fairless N2	4.75	*9.0	8.75	*5.0	11.75	*0.50	12.25	*1.75	12.75	*0.75	13.25	*0.25		*1.50								
Fontana K1	*6.25		+2.25		0.75		1.25		1.75		2.25		2.75									
Pittsburgh /3	6.75	+7.0	10.75	+3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75		0.50	*10.75	*24.75			*0.75	*16.50	4.25	*11.5
Alton, Ill. L.I	4.75	*9.0	8.75	*5.0	11.75	*0.50	12.25	*1.75	12.75	*0.75	13.25	*0.25	13.75	*1.50								
Sharon M3	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75		0.50	3 4 7 4 2 3	122252	-115333	LOSSIE.	120-28	273233	10000	
Pittaburgh N/	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75		0.50	*10.75	*24.75		*19.0	*0.75	*16.50	4.25	*11.5
Wheeling 115	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75		0.50								
Wheatland W4	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75		0.50	111 22	121124	122122	122212	12.00	122-22	0.14.	
Youngstown Y/	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75		0.50	*10.75	*Z4.75	*3.25	*19.0	*0.75	*16.50	4.25	*11.5
ndiana Harbor Y/	5.75	*8.0	9.75	*4.0	12.75	0.50	13.25	*0.75	13.75	0.25	14.25	0.75		*0.50	*** **		40.00		44 00			
Lorain N2	6.75	*7.0	10.75	*3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	*10.75	TZ4. 75	*3.25	*19.0	70.75	+16.50	4.25	*11.5

Threads only, buttweld and seamless, 2½ pt. higher discount. Plain ends, buttweld and seamless, 3-in. and under, 5½ pt. higher discount. Galvanized discounts based on zinc price range of over 9¢ to 11¢ per lb. East St. Louis. For each 2¢ change in zinc, discounts vary as follows: ½, ¾ and 1-in., 2 pt.; 1½, 1½ and 2-in., 1½, pt.; 2½ and 3-in., 1 pt., e.g., zinc price range of over 13¢ to 15¢ would lower discounts on 2½ and 3-in. pipe by 2 points; zinc price in range over 7¢ to 9¢ would increase discounts. East St. Louis zinc price now 12.50¢ per lb.

CAST	IRO	N	W	A	T	ER	2	P	P	E	1	N	D	EX
Birming	ham												12	5.8
New Yo	rk												1:	8.6
Chicago													14	0.0
San Fra	incise	0-1		1.									1	18.6
Dec. 5 in. or	1955.	. 176	du	e.	0	la	88	1	1	a	j.	h	car	ier
planatio	m: 1	1.	57.	1	Se	pt.		1.		19	55		is	suc.

COKE						
Furnace, beehive (f.o.b.)						et-Ton
Connellsville, Pa	. \$	14.	7	ā	to	\$15,50
Foundry, beehive (f.o.b.)						\$18.50
Foundry oven coke						
Buffalo, del'd						\$33,25
Chattanooga, Tenn						30,80
Ironton, O., f.o.b						30,50
Detroit, f.o.b						32.00
New England, del'd						33.55

New Haven, f.o.b 31.00
Kearny, N. J., f.o.b 31.25
Philadelphia, f.o.b 31.00
Swedeland, Pa., f.o.b
Painesville, Ohio, f.o.b 32.00
Erie, Pa., f.o.b 32.00
St. Paul, f.o.b
St Louis, f.o.b 33.00
Birmingham, f.o.b 30.35
Milwaukee, f.o.b 32.00
Neville Is., Pa







stack-molding gives you lower-cost castings

This 2½-pound gray iron casting is a generator part for an automotive electrical system.

COSTS were CUT by casting 60 at a time...5 to a mold ... 12 molds high.

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ACCURACY... Maintenance of close tolerances reduces production costs.

HIGH STRENGTH . . . Heattreating facilities available to provide any desired properties.

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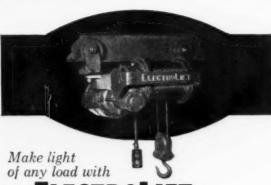
Ferrochrome	Spiegeleisen	Alaifer, 20% Al, 40% Si, 40% Fe.	
Cents per lb contained Cr. lump, bulk, carloads, del'd. 65-71% Cr., .30-1.00%	Per gross ton, lump, f.o.b., 3% Si max. Palmerton, Pa. Neville Is.,	f.o.b. Suspension Bridge, N. 1. per lb.	9.85€
	Mn pig down 35 lb	Carloads, bulk	
max. St. 41.00 0.50% C. 33.25 0.02% C. 34.00 1.00% C. 33.00 0.10% C. 33.75 1.50% C. 32.75 0.20% C. 33.50 2.00% C. 32.50 3.5% C. 5.5% Cr. 2.5% max. Si. 26.00 4.6% C. 58-63% Cr. 3.6% Si. 22.50 5-8% C. 58-63% Cr. 3.6% Si. 22.50 6-8% C. 50-60% Cr. 4-7% Si. 22.50 4.04 4.50% C. 60-70% Cr. 1.2% Si. 22.00 4.04 4.50% C. 60-70% Cr. 1.2% Si. 28.75	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	f.o.b. Langeloth, Pa., per pound contained Mo	\$1.50
3-5% C, 53-63% Cr, 2.5% max. Si 26.00 4-6% C, 58-63% Cr, 3-6% Si 22.50		Ferrocolumbium, 58-62% Cb, 2 in. x D, del'd per lb con't Cb	
5-8% C, 58-63% Cr, 3-6% Si 22.50 6-8% C, 50-56% Cr, 4-7% Si 22.00	2 in. x down, cents per pound of metal	Ton lots	\$3.45 3.50
0.025% C (Simplex) 35.00 0.010% C max, 63-66% Cr, 5-7% Sl. 34.50 0.25% C max 33.50 0.010% C max, 68-71% Cr, 2% Sl	delivered. 95.50% min. Mn, 0.2% max. C, 1% max. Si, 2.5% max. Fe. Carload, packed 45.75 Ton lots 47.25	Ferro-tantalum-columbium, 20% Ta, 40% Cb, 0.30% C, del'd ton lots, 2-in. x D per lb con't Cb plus Ta	\$3.40
max 34.50 0.25% C max	Electrolytic Manganese	Ferromolybdenum, 55-75%, 200- lb containers, f.o.b. Langeloth,	
High Nitrogen Ferrochrome Low-carbon type 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome max. 0.10% C price schedule.	F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, f.o.b. Marietta, O., delivered, cents per pound. Carloads, bulk 34.25	Fa., per pound contained Mo Ferrophosphorus, electric, 23-26%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn \$5.00 unitage.	\$1.76
Chromium Metal	Ton lots, palletized	per gross ton	131.00
Per lb chromium, contained, packed delivered, ton lots, 97.25% min. Cr. 1% max. Fe.	Premium for Hydrogen - removed metal 0.75	Ferrottanium, 40% regular grade 0.10% C max., f.o.b. Niagara Falls, N. Y., and Cambridge, O., freight allowed, ton lots,	
0.10% max. C 9 to 11% C, 88-91% Cr, 0.75% Fe 1.38	Medium Carbon Ferromanganese Mn 80 to 85%, C 1.25 to 1.50, Si 1.50%	per 1b contained Ti	\$1.35
Flectrolytic Chromium Metal Per lb of metal 2" x D plate (1/4" thick) delivered packed, 99.80% min. Cr. (Metal- lic Base) Fe 0.20 max.	max., carloads, lump, bulk, delivered, per lb of contained Mn 24.00	Ferrotitanium, 25% low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Cambridge, O., freight allowed, ton lots,	81.50
Carloads \$1.15 Ton lots	Cents per pound Mn contained, lump size, packed, del'd Mn 85-90%.	Less ton lots	\$1.50 \$1.54
Carloads, delivered, lump, 3-in x down,	7 1 1 77 7	Ferrotitanium, 15 to 18% high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, car- load per net ton	\$255.00
Dacked. Price is sum of contained Cr and contained Si. Cr Si Carloads, bulk 24.75 16.65 Ton lots 29.75 16.05	0.07% max C, 0.06% (Bulk) P, 90% Mn 37.15 39.95 41.15 0.07% max C 35.10 37.90 29.10 0.19% max C 34.35 37.15 38.35 0.15% max C 31.10 33.90 35.10 0.30% max C 29.80 32.90 33.89 0.50% max C 29.80 32.50 0.75% max C 80.85% Mn, 5.0-7.0% S1 27.00 29.80 31.00	Perrotungsten, ¼ x down packed per pounds contained W, ton lots delivered	. \$2.15 minal)
Less ton lots 31.35 17.70	0.75% max. C, 80.85% Mn, 5.0-7.0% Si 27.00 29.80 31.00	Molybdic oxide, briquets per lb. contained Mo. f.o.b. Langeloth,	** **
Per lb of alloy, lump, delivered, packed.	Silicomanganese	Pa. bags, f.o.b. Washington, Pa., Langeloth, Pa.	\$1.49
30-33% Cr. 60-65% Si, 3.00 max. Fe. Carloads, bulk 24.00 Ton lots 27.95 Less ton lots 29.45	Lump size, cents per pound of metal, 65-68% Mn, 18-20% Si, 1.5% max. C for 2% max. C, deduct 0.3¢ f.o.b. shipping point.	Simanal, 20% Si, 20% Mn, 20% Al, f.o.b. Philo, Ohlo, freight allowed per lb.	
Cents per lb of alloy, lump, delivered,	Carloads bulk	Carload, bulk lump Ton lots, packed lump Less ton lots	20.50€
packed. 16-20% Ca, 14-18% Mn, 53-59% Si. Carloads, bulk	Briquets, packed pallets, 2000 lb up to carloads	Vanadium oxide, 86-89% V ₂ O ₅ per pound contained V ₂ O ₅	
Ton lots		Zirconium silicon, per lb of alloy 35-40% del'd, carloads, bulk	26.25€
Cents per pound of alloy, delivered, 60-	Silvery Iron (electric furnace) Si 15.50 to 16.00 pct., f.o.b. Keokuk, Iowa, or Wenatchee, Wash., \$106.50 gross	12-15%, del'd lump, bulk- carloads	9.25€
65% Si, 5-7% Mn, 5-7% Zr, 20% Fe ½ in. x 12 mesh. Ton lots	ton, frieght allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., \$93.00.	Boron Agents Borosil, per lb of alloy del. f.o.b. Philo, ohio, freight allowed, B	
V Foundry Alloy Cents per pound of alloy, f.o.b. Suspen-	Silicon Metal	3-4%, Si 40-45%, per lb con- tained B 2000 lb carload	\$5.50
sion Bridge, N. Y., freight allowed max. St. Louis, V-5: 38-42% Cr, 17-19% Si, 8-11% Mn, packed.	Cents per pound contained SI, lump size, delivered, packed. Ton lots, Carloads, 98.25% SI, 0.50% Fe 22.95 21.65 98% SI, 1.0% Pe 21.95 20.65	Ferro Zirconium Boron, Zr 50% to 60%, B 0.8% to 1.0%, Si 8% max. C 8% max. Fe balance, f.o.b. Niagara Falls, New York,	
Ton lots	98% Si, 1.0% Fe 21.95 20.65	freight allowed, in any quan- tity per pound	00.
Graphidox No. 4 Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, Si 48 to 52%. Ti 9 to 11%, Ca 5 to 7%.	Silicon Briquets Cents per pound of briquets, bulk, de- livered, 40% Si, 2 lb Si, briquets. Carloads, bulk. 8.00	Corbortam, Ti 15-21%, B 1-2%, Si 2-4%, Al 1-2%, C 4-5-7.5%, f.o.b., Suspension Bridge, N. Y., freight allowed.	
Carload bulk	Carloads, bulk	Ton lots per pound	
Ferromanganese Maximum base price, f.o.b., lump size.	Electric Ferrosilicon Cents per lb contained Si, lump, bulk, carloads, f.o.b. shipping point.	Ferroboron, 17.50 min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D, ton lots F.o.b, Wash., Pa., Niagara Falls, N. Y., deliyered 100 lb nn	
base content 74 to 76 pct Mn. Carlond lots, bulk. Producing Point Marietta, Ashtabula, O.; Alloy, W. Va.; Sheffeld, Ala.; Portland,	50% Si 14.60 75% Si 16.90 65% Si 15.75 85% Si 18.60 90% Si 20.00	N. Y., delivered 100 lb up 10 to 14% B	1.20
W. Va.; Sheffleld, Ala.; Portland, Ore	Ferrovanadium 50-55% V delivered per pound con-	Grainal, f.o.b. Cambridge, O., freight, allowed, 100 lb & over No. 1	
Ore. 11.00 Houston, Tex. 11.00 Johnstown, Pa. 11.00 Lynchburg, Va. 11.00 Neville Island, Pa. 11.00 Sheridan, Pa. 11.00	50-55% V delivered, per pound, contained V, in any quantity. Openhearth 3.20 Crucible 3.30 High speed steel 3.40	No. 79 Manganese-Boron, 75.00% Mn 17.50% B. 5% max. Fe, 1.50% max. Sl, 3.00% max. C, 2 in. x	50€
Philo, Ohio	Calcium Metal	max. Si, 3.00% max. C, 2 in. x D, del'd Ton lots (packed)	
Add or substract 0.1¢ for each 1 pct Mn	Eastern zone, cents per pound of metal, delivered.	Less ton lots (packed) Nickel-Boron, 15-18% B, 1.00%	1.57
Briquets, delivered, 66 pct Mn Carloads, bulk 13.70 Ton lots packed in bass 16.10	Cast Turnings Distilled Ton lots \$2.05	max. Al. 1.50% max. Si, 0.50% max. C. 3.00% max. Fe, balance Ni, del'd less ton lots	

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When you need machine work or specially built machinery of any kind, you'll find Sun Ship qualified to do the job exactly to your specifications. We have machine tools of every size, and the facilities and skills born of long experience.

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Safe . . . sure . . . swift . . . ElectroLift warm-drive hoists have a place in every manufacturing plant, large or small. Ranging from 1/4 to 10 tons in capacity, these units feature:

- Safe, sure braking and quiet, durable worm-gear drive.
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- Compact design for operation in close headroom.
- Quality construction and material for long, trouble-free

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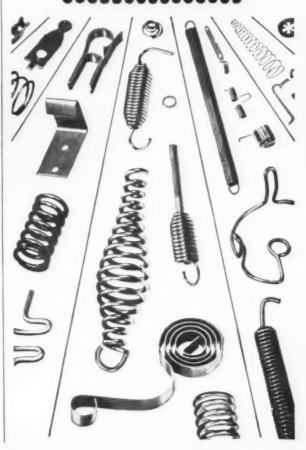
Clifton, N. J.



Rely on U. S. Steel Wire Spring for springs and small stampings of high carbon steel. At our plant, rigid quality control and close inspections are standard operating procedures. This insures you of getting perfect springs which help you keep rejects to a minimum, lowering your production costs. Let us quote on your requirements.

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ELECTRICAL EQUIPMENT RE-NU-BILT-GUARANTEED

M-G SETS 3PH-60 CY.

Qu.	KW	Make	RPM	Velts	Volts
2	4800(SU)	GE	450	300	2300/4400
1	2400	GB	459	200	2300/4600
7	2000	GM	514	600	2300/4600
9	1750/3100	O.E.	514	250/300	2300/4690
-	1750	GE	514	600	
A					2800/4608
A	1500	Gilli	729	600	6600/13200
1	1000	GE	T 20	375	2300/4160
1	1000	GE	900	260	4000/6600
1	1000	GE	900	600	2300/4160
1	500	GE	900	125/250	440
2	500 (New)	GE	1200	300	2390
1	500	GE	900	250	2300/4158
î	850	GE			
1	856	G/E	900	125	440/2300/
1	300	GE	1200	275	2300/4160
7	300	GE	1200	250	440/3300
î	250	GE	900	250	440/2300
î	240	Whee.	900	125	220/849
7					
1	200	Whee	1200	550	2300
1	200	El.Mhy.	1200	25.0	2300/4600
1	150	GE	1200	275	2300
1	150	Whee.	120●	275	2300

		D. C.	MOTOR	S	
Qu.	HP	Make	Туре	Velta	RPM
1	3990 (New)	GE	Elec. B.V.	475	820
1	3000 (New)	Whee.	Buc. F.V.	825	689
2	2700	GE	Enc. B.V.	415	280
1	2359 (New)	GE	Enc. B. V.	600	209/306
1	2200	GB	MCF	699	409/500
2	2000	GB	Finc. B. V.	350	3280/350
2	1750	GIB	Enc. S.V.	250	175/350
2	1500	What.	New	860	300/700
4	1500	Whoe.	New	5.25	600
1	1300	GIE	MCF	300	200/406
1	1300	GE	JH C.B.	600	450/600
1	1000	Whee.		590	800/2000
4	1000	GM	D-8	600	600/900
2	909	GH	MCF	250	180/360
1	850	GH	MCF	250	85/170
1	750	QTI	MCF	600	120/569
2	750	GR	MOT	690	459/900
2	645	88		300	1000
4	600	Whee.		250	275/560
- 5	400	GM	D-8	250	300/200

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Capacity 5/8" to 31/2" Solids
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50—All-Steel, 50-Ton Capacity
Suitable for loaded interchange service.
FLAT CARS
5-50-Ton Capacity

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THE CLEARING HOUSE

1961 Starts Slow In the Midwest

Used machinery dealers in the Midwest ended 1960 with very little activity.

And the outlook for the first quarter is very much the same.

■ A slow holiday season in the Midwest made December another slow month for used machinery dealers there. However, dealers weren't expecting any increased activity and, for the most part, don't look for much in January.

If anything, they believe, business might slip even further. So far, that's the way the situation is shaping up.

One dealer who did relatively well in November says, "We're getting along. Our November wasn't bad, but there is no denying that December was a pretty bad slip."

Another agrees, "I guess we were back further in December than at any time this year."

Rebuilders Inactive — However, Midwest dealers were slow to feel dropoffs earlier in 1960. This time, the situation has extended into the rebuilt machine sector of the industry. Rebuilding lines are down to four-day weeks and light crews.

Constant market checks by salesmen suggest that buyers are still holding on to cash and waiting for a better picture in the 1961 business outlook.

Slow First Quarter—Dealers of both reconditioned and rebuilt machine tools don't expect any real action during the first quarter of 1961. They are confident that customers still have cash reserves earmarked for tool purchasing. But these customers aren't ready to commit their cash until their own product lines show stronger sales gains.

The farm equipment industry, for example, has what is regarded as a pretty good year in prospect (see p. 96). Yet it is holding its purchases at minimum levels.

Comments such as "If the price is right, you can sell anything," aren't borne out by present machine tool movement in the Chicago area. Prices are at rock bottom, and rebuilders report that there isn't room for maneuvering at lower price levels.

Some Price Cutting—Dealers in reconditioned machinery have seen some price cutting in recent months and note that it is continuing. But auction machinery, despite the fact that it has fallen in price, still isn't at a level that justifies give-away prices.

An early casualty of the poor first quarter outlook: It seems positive that direct mail advertising, always heavy during the first months of the year, will be cut back sharply. In a few cases, it will be completely eliminated.

If there's any particularly bright spot in the immediate future of used machine dealers, it's the fact that supplies of available machine tools for resale are on the upswing. Prices on this equipment are soft enough so that some dealers have started to restock. But they admit they don't see any market upswing before March.

ROLLING MILLS—STEEL WORKS EQUIPMENT

ROLLING MILLS

- & 2612" x 112" PLATE MILL.
- 3-high.

 1-4-High Hot Strip Mill, Single Stand, reversing, 25° & 42° x 66° rolls.

 1-28° x 40° Hot Strip Mill, 2-high, with 2500 HP D.C. reversing motor.

 1-16° 3-High Bar Mill with pinion
- stand, new.
 1-9" BAR MILL, five stands, 3-high, one pinion stand, variable speed drive.
- 32" & 20" x 56" 3-HIGH SHEET BREAKDOWN MILL, motor driven screw-
- down, tables.

 32" & 20" x 48" 3-HIGH SHEET BREAKDOWN MILL. power screwdown, roller and catcher tables.
- 4-29" x 48" 2-HIGH SHEET FINISHING MILLS. 6-26" DIA. 2-HIGH COLD SHEET MILL STANDS with rolls 48", 56", 62" and
- 1-16" x 22" 2-HIGH COLD MILL, 100 HP A.C. motor and gear drive.
- 1-8" x 12" 2-HIGH COLD MILL, 50 HP D.C. meter, reel, 252 FPM
- $1-8^{\prime\prime}$ x $10^{\prime\prime}$ 2-HIGH COLD MILL, single stand.
- stana.

 1-8" x 10" 2-HIGH COLD MILL, four tandem stands, D.C. motors, reel, 252 FPM.

 1-31₂" & 8" x 51₂" 4-HIGH COLD MILL, unwind, rewind, 60 HP D.C. motor.

SPECIALS

REVERSING BLOOMING MILL

25" 2-HIGH REVERSING RLOOMING MILL DRIVEN BY 2500 HP REVERSING MOTOR 50/120 RPM. ROLL STAND LIFT 31%". MOTOR-GENERATOR SET CONSISTING OF 3000 HP MOTOR.

6600 VOLTS, 2 PHASE, 60 CYCLE, WITH FLYWHEEL AND TWO GENERATORS, TABLES AND MANIPULATOR, MAJOR POR-TION OF THIS EQUIPMENT WAS INSTALLED NEW IN 1945.

MECHANIZED SHEET MILL

COMPLETE MECHANIZED SHEET MILL CONSISTING OF CON-TINUOUS FURNACES, 3-HIGH ROUGHING STANDS, 2-HIGH FINISHING STANDS, WITH NECESSARY ROLLER AND CATCHER TABLES, ROLL TYPE DOUBLERS, 2-HIGH COLD MILLS, ROLLER LEVELLERS, ROLL TURNING LATHE, FIN-ISHING EQUIPMENT SUCH AS SHEARS, LEVELLERS, SHEET OILER, ANNEALING FURNACES, NORMALIZING FURNACE, PICKLERS, ETC. THE ITEMS ARE FOR SALE AS INDIVIDUAL UNITS, IF DESIRED. STREINE SIDE-AND-END SHEARING UNIT AND MECHANICAL PACK OPENING MACHINE WITH COMPLETE SYSTEM OF ROLLER CONVEYORS BETWEEN THE UNITS.

GEAR REDUCTION SETS

1200 HP GEAR DRIVE, ratio 3.73 to 1 1200 HP GEAR DRIVE, ratio 10 to 1 1000 HP GEAR DRIVE, ratio 3 to 1 400 HP GEAR DRIVE, ratio 9 to 1 400 HP GEAR DRIVE, ratio 9 to 1 200 HP GEAR DRIVE, ratio 10 to 1

MOTORS

1500 HP, 240 RPM, 2300/3/60 1200 HP, 255 RPM, 6600/3/60 1200 HP, 355 RPM, 2300/3/60 660 HP, 450 RPM, 2300/4600/3/60 400 HP, 450 RPM, 2300/4600/3/60 400 HP, 300 RPM, 2300/3/60

- VERTICAL OPEN-SIDE BAR SHEAR, 28" knives, capacity 1" x 24" or equal, 30 HP
- motor. CROP SHEAR, 400 tons pressure, 14" atroke, 28" knives. ALLIGATOR SHEAR, Canton No. 3, capacity
- SHEET SQUARING SHEARS, capacity 156"
- SHEET SQUARING SHEARS, capacity 120" x 10 gauge. SHEET SQUARING SHEARS, capacity 48"
- x 3/16".
 STAMCO SIDE AND END-CUT SHEARING
 UNIT consisting of 4 shears to trim both
 sides and cut to length, without handling.
 Conveyors included. Side shears will handle 162", end shears 72". Thickness 4;

FURNACES AND FURNACE EQUIPMENT

- NA.

 80 FT, x 72" PAIR FURNACE for sheet
 mill, gas or oil burners, motors, controls,
 50 FT, x 62" DOUBLE LANE PACK FURNACES for sheet mill, combination burners, controls.
- " x 142" x 70" HIGH, ANNEALING FURNACES, will handle 48" wide sheets.
- 81" x 171" x 70" HIGH, ANNEALING FURNACES, for sheets up to 72" wide. STRAIGHTENING MACHINE for inner cov-ers of annealing furnaces 72" high, or less, MORGAN INGOT STRIPPER CRANE, 200 tons capacity, 50 ft. span.

LEVELLERS AND STRAIGHTENERS

- " s 1" CAPACITY PLATE ROLLER LEVELLER, 150 HP A.C. motor, nine 14"
- onen. rolls.

 90" PLATE LEVELLER, backed-up. 9 work
 rolls 14" x 90", capacity ½" x 72" plate.

 72" SHEET LEVELLER, 17 rolls, 4½"
 diam., 30 HP A.C. motor, McKay.
- 66" SHEET LEVELLER, 17 rolls, 4" diam., 25 HP A.C. motor, McKay.
- 25 HP A.C. motor, McKay. 54" SHEET LEVELLER, 17 rolls, 41/4" diam., 25 HP A.C. motor, McKay.

- SUTTON NO. 1½ BF BAR STRAIGHT-ENER, capacity ¼" to 2" diam. bars, 60/240 ft. per min.
- HALLDEN STRAIGHTENING AND CUTTING-OFF MACHINE for rods from 5/16" to 54" diam., 14' cutoff,

MISCELLANEOUS

- BILLETEER, size "C," for conditioning billets up to 13" square.
- BUILDING, structural steel, 50' x 396', with 25' lean-to runway for 20-ton crane.
- CORRUGATING MACHINE for sheets, removable dies 144" long, for 114", 212" and 3" corr.
- DOUBLERS for hot steel sheets, mechanical roll type, capacity 48" x 144".
- GALVANIZING LINE for sheets 16 to 31 gauge, 62" maximum width.
- GRINDER FOR ROLLS 34" x 192", good condition, little used, Wheel size 36" x 4". LATHE FOR ROLLS up to 40" diam., bed
- LATHE FOR ROLLS up to 30" diam., bed
- MECHANICAL PACK OPENING MACHINE for hot rolled steel sheets up to 48" wide
- for hot rolled steel sheets up to 48° wide. 9 V E R H EA D ELECTRIC TRAVELING CRANE, 15 tons capacity, 50 ft. span, 220/440 volts, late type.

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—German Steel Coolers—11'x40'
—Gas Fired Die heating furnace, 11'x40'
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forging Bell bung top heating, blowers and controls, gas or

5-Bell bung top heating, blowers and controls, gab or oil
4-G.E. Rotary furnaces complete with charging, discharging and control equip., auto., 29' dia.
8-G.E. single compartment conveyor type draw furnaces 8' wide, 12'5' long x 15' double door
1-Di tanks 9' long x 4' wide x 3'5' high
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GRINDERS-PLAIN model B hydraulic

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GRINDERS—TOOL AND CUTTER

**Bridgenort 4½, wat tool grinder, 30"

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Excelle 246 double end carbide

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C-Cincinnati = 2 Universal, tool and cutter

1—5:U Hisey Welf, 3 HP, dauble end pedestal

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6" Hammond double end pedestal

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4" Hammond double end pedestal

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Fay 12"x21", front and back slide, 12" 3-Jaw chuck Sparks semi-automatic hydra-feed, 21"x52" B&B semi-automatic hydraulic, 12"x36"

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LATMES—ENGINE
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2-Monarch 22"x60" Model N. Timken sizing
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taper
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LATHES—TURRET

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3A-Warner & Swasey bar and chucking, 61/4 hole

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3R-Gisholts chucker, 51/4 hole serve cutting

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LG2 Stowe Flexible shaft grinder pedestal

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3—Byron Jackson 1½" BNL Bilton pumps
2—Pennsylvania, 500 GPM, 30 HP, centrifugal
3—Byron Jackson 1½" BNL Bilton pumps
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Circulating quench tanks with conveyor Circulating tanks with manual handling equip. Handling equip. Handling equipment for oil, water, brine General Electric spin quench oil, water, brine Rotating quench boshes

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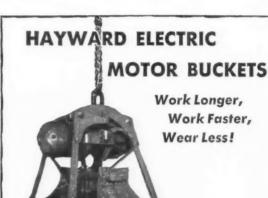
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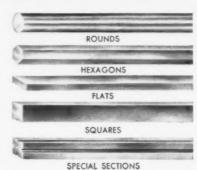
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